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ORIGINAL ARTICLES.

CHOLESTEATOMA OF THE EAR.

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The subject of this paper, though long known in medical literature, has only in late years received much attention. American text-books on otology, with few exceptions, mention it in short paragraphs. And while special journals contain many contributions to the subject, it has not been brought sufficiently before the profession in journals devoted to medicine in general.[1] It is needless to add that the subject is not understood by the profession as it deserves to be.

And yet this disease was found by Virchow[2] in nearly one-third of the number of fatal cases of ear-trouble. This fact alone should make it an object deserving careful study. Its many peculiarities, and the ingenious and varying theories as to its nature, add greatly to the interest.

The disease presents itself as a bright, white growth of pearly luster. Its surface is smooth. On handling it readily breaks up into distinct layers, which are placed concentrically over each other. It contains no blood-vessels, and, when examined with the microscope, is seen to be made up of layers of large, flat, non-nucleated, polyhedral cells, which lie stratified in layers that cling more or less firmly to each other. These cells are in every respect similar to the cells of the outer layers of epidermis. Between the layers of cells we usually find cholesterin crystals.

Such growths are found in the middle ear—in the tympanum and in the mastoid cells. They lie in these cavities, which are frequently enlarged, and closely fill them, so as to show accurately the configuration of the cavity in their form. The cavities are smooth, unless they have become carious. They are lined with a very thin membrane, which consists of a layer of periosteum, upon which lies a rete Malpighii, just as in the skin, and which gradually passes over into flatter and flatter cells that finally lose their nuclei and become the flat cells described already. The latter are placed directly upon the lining membrane, which must be regarded as the capsule that surrounds and produces the growth.

This epidermic growth is known as "cholesteatoma," a name given it by Johannes Müller,[1] because of the cholesterin crystals, which he looked upon as the characteristic feature of the growth. It is also called "pearl tumor" (Cruveilhier[2]) or "margaritoma," (Virchow[3]) from its peculiar pearly luster. This it owes to the interference of light by the many fine layers of cells.

The growth varies greatly in size; it may be smaller than a pea or as large as a hen's egg. In practice it is often difficult to decide whether a small collection of flattened epidermic cells in the middle ear is or is not a cholesteatoma.

The growth is most frequently found in the upper and posterior part of the tympanic cavity, but it often extends into the mastoid cells, where it distends the bony cavities by pressure, and where it may perforate the bone externally, or internally, into the cranial fossa. Politzer recently reported a case in which the large growth filled the middle ear, part of the mastoid and part of the auditory canal, and in which it had destroyed the entire internal ear.[4]

Cholesteatoma is often found associated with chronic suppuration of the middle ear, with perforation or destruction of the drum-head, and with polypi of the middle ear. It often develops long after this disease has run its course. But the growth has been found without any other or any previous disease of the ear, and with a normal drum-head. As is well known, it occurs in other parts of the body; it has been found in other cranial bones, in the brain, in the spinal cord, in the mamma, the ovary and the testicle.

The epidermic growth, which we have thus found to form in the tympanic cavity and the mastoid cells, would appear to be a heterologous tumor, for the middle ear is lined by a mucous membrane, which consists partly of columnar and ciliated cells, as in the Eustachian tube, and partly of much-flattened non-ciliated cells.

The explanation of the presence of epidermis in

[1] The following publications are the only ones I could find. Orne Green: Boston, Med. and Surg. Journal, 1881, on Desquamative Inflammation of the Middle Ear. Randall: Journ. Am. Med. Assoc., 1890, on Cholesteatoma of the Ear.

[2] Quoted by Bezold, Arch. of Otol., vol. xix, p. 233.

[1] Ueber d. feineren Bau d. Geschwülste, 1838.

[2] Anat. Path., liv. ii.

[3] Virchow's Archiv, 1855, vol. viii.

[4] Wien. med. Wochenschr., 1891.

such spaces as the middle ear and mastoid cells is not easily given. Various theories have been advanced. Before we consider them we shall study the clinical aspect as presented by a few cases.

CASE I.—A gentleman, aged twenty-three, first seen March 23, 1891, had had for two months ringing in the right ear and a slight but very offensive discharge. He had had ear-trouble previously, and had been slightly deaf for a long time. Tests for hearing: Watch, 4 cm.; whisper, 0; and voice, 8 m.; Rinné, positive; tuning-fork in Weber's experiment heard in the right ear. After cleaning the external auditory canal, which contained much white, cheesy-looking matter, I found that there was a perforation, about 2 mm. in diameter, in the upper part of the drum, just above the prominent point of the handle of the malleus, known as the short process. The perforation lay in that part of the drum-head called Shrapnell's membrane, or the *membrana flaccida*, from its fine structure. By means of a fine Hartmann canula, which was passed through this perforation, a great quantity of white matter was washed out of the cavity situated beyond. After getting the cavity as clean as possible, it was dried by cotton, and iodoform was then carried into the cavity through the opening. This treatment was kept up at intervals for about four weeks. Less and less matter could be washed out of the cavity, and the discharge ceased entirely; at the last visit the cavity seemed to be perfectly clean; the hearing had improved. The white matter was cholesteatomatous substance.

Perforations in Shrapnell's membrane are not common. They are often found with little or no affection of the rest of the drum, the disease seeming to run its course in the small space in the upper part of the middle ear, between the malleus and the outer wall. This space frequently does not communicate with the rest of the middle ear, or communicates only in the posterior part, so that blind sacs are formed. These perforations are associated with a form of suppurative inflammation which is very chronic, and which, from the proximity to the brain and the thinnesss of the intervening plate of bone, is exceedingly dangerous to life. Their chronicity is due, according to Bezold, to the fact that "stratified epidermis is constant behind these perforations."[1] Many observers have called attention to the frequency of cholesteatomatous masses in the attic (or upper part of the middle ear) in these cases.[2] It is true that these epidermoid cells often form only irregular masses, while the typical cholesteatoma is composed of regular layers. Nevertheless, it seems impracticable to make a clinical distinction, as it is impossible to find a sharp pathologic difference.

[1] Arch. of Otology, vol. xix, p. 246.

[2] See Kretschmann (Arch. f. Ohrenh., xxv; reviewed in Arch. of Otol., xvii, p. 263), and others.

CASE II.—A young man, aged twenty-one, applied at the City Hospital Dispensary for treatment July 13, 1891, complaining of a discharge he had from the right ear since childhood; which had had its origin in some severe illness (bilious fever?). He had been treated for a long time by different physicians, without any improvement. Several polypi were found, which were scraped off with the curette, and some pieces of dead bone were then likewise removed. After this had been accomplished, a white substance was seen in the upper part of the middle ear. It could not be removed by injection alone, but had first to be dislodged by probes. The large cavity, which was then exposed, was further cleaned, and it was then seen that the whole attic of the middle ear was exposed, the plate of bone forming part of the outer boundary of the middle ear having been entirely destroyed. The ossicula were also lost. At first the patient was treated with a mixture of iodoform and benzoin, but after the cholesteatoma was removed there was no discharge, excepting once for a few days. After removing a small polypus which had returned, the discharge ceased. I then saw the patient at intervals of several weeks for a few months, and at the last examination I found but little epidermis in the water, after washing out the middle ear.[1] He heard the watch on firm contact. His left ear is normal, but there is a small opening in Shrapnell's membrane—as was likewise found in Case I, in the healthy ear. The fact has been pointed out by Walb and by Bezold, that it is not uncommon to find "on one side a perforation of Shrapnell's membrane with suppuration, on the other side a small aperture at the upper pole of the middle ear."[2]

I submitted some of the slides prepared from the matter removed in Case II to Professor N. G. Keirle, pathologist of the City Hospital. He agreed that the substance removed from the ear was composed of typical cholesteatomatous cells.

In Case II we have the cholesteatoma in the same location as in Case I, but it has enlarged, encroached on the walls, and destroyed the outer wall entirely.

CASE III has already been published under the title of "A Case of Extensive Caries and Cholesteatoma of the Mastoid Process, without Local Signs of Inflammation; Death from Thrombosis of the Lateral Sinus and Meningitis."[3] I shall refer only to those points which bear upon the subject under discussion. The patient, a young man, had had chronic suppurative inflammation of the middle ear since childhood. He had many polypi; there was a slight but very offensive discharge. An attack of severe pain came on about the middle of March, 1890, and the patient was not able to work for about five weeks, when he apparently recovered, and considered himself well again. This period of quiet lasted only about five weeks, when pyemia,

[1] Recently the patient again returned to the Dispensary with a slight discharge.

[2] Arch. f. Ohrenh., xxvi, p. 185.

[3] Arch. of Otology, vol. xx, p. 1.

due to erosion of the lateral sinus, suddenly set in, from which the patient died. The *post-mortem* examination, which Professor Keirle had the kindness to make, showed that there was a large cavity in the temporal bone, which had been filled by a cholesteatomatous growth. This cavity occupied almost the whole mastoid process, and had ulcerated this bone both externally and internally, thus opening the lateral sinus. This case shows the extent to which these tumors grow, though, as I have mentioned, they may become much larger still.

In this case there was extensive caries, and the tumor had partly degenerated, especially that part nearest the middle ear.

I wish to mention, parenthetically, that small collections of cholesteatoma were found in the lateral sinus at a considerable distance from the point of erosion.

The three cases related are examples of various degrees of this affection; other cases, similar to them or intermediate in degree, might be described. I shall furnish only one more, which will illustrate the serious symptoms that may arise from the presence of a small cholesteatoma:

CASE IV.—The patient, aged about forty-five years, had had a discharge from the right ear for three or four years. The ear-trouble followed an affection of the throat. During the last year he had had several very severe attacks of pain, which were treated by several physicians with various instillations. When I was called in through the kindness of his family physician, Dr. C. H. Jones (May 6, 1892), I learned that the man had been sick for several weeks, suffering with great pain in the ear and head. When I saw him the pain was so intense that he could not lie down, and he had passed several sleepless nights. The patient had slight fever (100.4° F.). On examination a small polypus was found in the posterior and lower quadrant of the membrana tympani, covered with a little pus. Over the prominent short process of the hammer there was a small perforation about 2 mm. in diameter, very much as in Case I. In this there was likewise a drop of pus. It is necessary to state that the otorrhea had stopped, or was very scant for some time. The ear was cleaned, and the polypus scraped away in great part with a curette. The perforation in the upper part (in Shrapnell's membrane) was washed out by means of Hartmann's canula. This was not sufficient; it was necessary to use bent probes (sharp and blunt ones) and forceps to remove the large flakes which appeared in the opening. In this way a large quantity of dense white scales was removed, which showed the characteristic lamellated arrangement and the pearly luster. Having removed this, steam was applied to the ear, and in a few hours there was a great flow of very offensive pus. At the same time the patient experienced relief.

The ear was cleaned daily in the same way, but in about five days the discharge again decreased, and pain reappeared, especially in the right occipital region, which appeared slightly swollen. In the upper perforation there was some carious bone (malleus?) which seemed to act as an impediment. The perforation was therefore enlarged downward and backward. The opening exposed polypoid masses in the middle ear. The patient improved greatly after this. The opening above was further extended, so as to meet the lower perforation, and the polypi were curetted and treated with absolute alcohol. He continued well for several weeks, during which he used the absolute alcohol. But on June 4th pain again came on, which gradually increased for several days, and the swelling in the occipital region reappeared. The means which had hitherto relieved him failed to give relief, and so he was prepared for an operation.

Operation, June 7th. At the time of the operation the patient was in great pain, and there was great sensitiveness to pressure, especially in the right occipital region, where there was a very general swelling. It was not possible to detect fluctuation with certainty, but I convinced myself that by pressing I could force a drop of pus from the perforation in Shrapnell's membrane. It was decided to open the mastoid process first. The surface of the mastoid was found normal, as was likewise the interior. It was opened to the extent (in depth) of about one cm. It was next decided to make a deep incision through the swelling in the posterior portion over the occipital bone. This opened into a large abscess-cavity, reaching far forward under the sterno-cleido-mastoid muscle. The contents were very offensive pus. A careful examination did not reveal any opening in the bone, which it was suspected lay on the inner surface of the mastoid process. The two wounds were united in the deeper parts, and iodoform-gauze passed through from one to the other. After the wounds had been thoroughly disinfected with a sublimate solution they were dressed with iodoform-gauze.

The subsequent course of the disease was very favorable; the wounds closed very rapidly, without leaving a fistula. The middle ear is now clean and dry; the two perforations which were united are now separate again. There is no suppuration. The patient uses instillations of a 2 per cent. solution of salicylic acid in absolute alcohol.

I have related this case to show the danger of small cholesteatomata in the attic. It is impossible at present to extract any cholesteatomatous matter from the upper perforation with the tympanic canula or with the probe. This by no means renders it certain that there is none deposited there, for we know that this matter is sometimes so tough that it cannot be washed out;[1] yet it is probable that we have removed it.

Let me mention that we find cholesteatomatous matter in other forms of chronic suppuration of the middle ear, in cases in which perforations exist at other parts beside the membrane of Shrapnell.

[1] In a case published by Gorham Bacon, the cholesteatoma would not yield even when exposed to a stream of water, and had to be scraped out. (Arch. of Otol., xviii, p. 391.)

Turning now to the pathology of this growth, one will get but little information in text-books. In Billroth's *Pathology*, cholesteatomata are regarded as sebaceous cysts or atheromata, "especially those that are congenital, on the forehead, temples, or face, filled with a milky or light-yellow pulp, which, under the microscope, shows little beside epidermic scales and crystals of cholesterin."[1] This is not the description of the tumor as we now regard it. It is true that Toynbee[2] looked upon them as such, and believed that they originated in the external auditory canal, but his view has long since been shown to be erroneous.

Virchow[3] describes cholesteatoma as an *epithelial neoplasm*, composed of concentric layers of flat polygonal non-nucleated epidermoid cells, covered with an exceedingly fine capsule; a heteroplastic tumor, whether found in the pia mater or in the bones of the skull. Occurring as it does in mesoblastic tissues, he finds it analogous to *epithelial carcinoma*.

Those occurring in the pia mater are now believed to be formed by the proliferation of the subarachnoid endothelium, due to some unknown irritation. The proliferated cells become flattened by pressure against each other. Those of the mamma, the ovary, and the testicle, develop from the glandular epithelium of these organs.[4]

The views concerning the genesis of cholesteatoma of the ear have been widely different. Various observers have attempted to find the origin of cholesteatomata in the embryonic development of the labyrinth from an involution of the epiblast (Bœttcher,[5] Schwartz,[6] Mikulicz,[7]) or, on the other hand, in an involution of epidermis in the first branchial cleft, which develops into the Eustachian tube and middle ear (Kuester).[8] They would thus be congenital tumors similar in their nature to dermoid cysts.[9]

There is no doubt that Virchow's theory holds good for some cases of cholesteatoma of the middle ear. Of the cases which fall under this head, one recently published by Kuhn[10] may be mentioned. The patient, aged fifty-one years, had never had any ear-trouble, and had been able to hear well till about one year before he was treated. During this year he had at first tinnitus at intervals, and later on dizziness accompanying the tinnitus. On his taking a severe cold, pain immediately set in, with fever and great local inflammation. Twelve days afterward he was operated upon, and a cholesteatoma as large as a hen's egg was found filling the whole mastoid process. This, as Kuhn believes, was in all probability a cholesteatoma which originated in the mastoid process.

A view distinctly different from the foregoing is that cholesteatoma is an inflammatory product from the surface of the mucous membrane, which is retained in the spaces of the middle ear, or the cells of the mastoid process, and by gradual accumulation forms the tumor. This is the theory of Von Troeltsch.[1]

The difficulty encountered here lies in explaining how a cavity normally lined with a mucous membrane can cast off cells of an epidermoid form, and even more, can take on all the characteristics of epidermis with a well-defined rete Malpighii. How are the products of inflammation changed into epidermoid cells? This has been answered in various ways. Troeltsch believed that the product of inflammation (pus), by irritating the mucous membrane, causes a great production of cellular elements, changed in form by the pressure. There are many objections to accepting this view.

Wendt[2] answered the questions in quite another manner. He regarded the epidermoid mass as the product of a desquamative inflammation of the mucous membrane of the middle ear; for this membrane, as he had found, may take on all the characteristics of epidermis when exposed by a large perforation of the drum-head.

It has recently been shown by Schuchardt[3] and others that analogous changes are found in simple ozena, the ciliated epithelium of the nasal cavity being converted into epidermis. The change of laryngeal mucous membrane into epidermoid tissue (*pachyderma laryngis*) as described by Virchow,[4] is to be remembered in this connection, as well as the change which takes place in the mucous membrane, when it is exposed to the air, as in rectal or uterine prolapse or in nasal or uterine polypi: the part exposed to the air becomes hardened and epidermoid.

A novel explanation has been offered by Lucae.[5] Finding cholesteatoma commonly associated with

[1] Amer. ed. (1883), p. 753.

[2] London Medical Gazette, Nov., 1850. Toynbee, Diseases of the Ear, 1860.

[3] Virchow's Archiv, 1855, vol. viii, p. 371; also, Verhandl. d. Berlin. med. Gesellsch., Feb. 13, 1889.

[4] See Glaeser, Virchow's Archiv, Bd. cxxii, p. 394.

[5] Arch. für Anat. u. Phys., iii, 1869.

[6] Krankh. d. Ohrenh., 1885, p. 221.

[7] Wien. med. Wochenschr., 1887, p. 953.

[8] Berlin. med. Gesellsch., Feb., 1889; Deutsche med. Wochenschr., 1889, Nos. 11–13.

[9] As such they were classed by the older pathologists. See Rokitansky (Allg. pathol. Anatomie), Billroth, and others. True dermoid cysts have been found in the mastoid process. See Steinbruegge, in Orth, Spec. path. Anat., p. 62.

[10] Arch. of Otol., xx, No. 4, p. 291.

[1] Arch. f. Ohrenh., 1868, vol. iv, p. 97.

[2] Arch. f. Heilk., vol. xiv.

[3] Referred to by Schmiegelow, Arch. of Otol., xx, p. 254.

[4] Deutsche med. Wochenschr., 1887, p. 694.

[5] Arch. f. Ohrenheilk., vol. ii, p. 305.

aural polypi, he was led to believe that there was a proliferation of epidermis on the polypi, and that this, by gradual desquamation, produced a cholesteatoma. In certain cases described by Kuhn,[1] the cholesteatoma was found attached to the floor of the middle ear. It is supposed that these may have been produced in the manner described by Lucae. Another fact bearing on this theory is the discovery by Moos and Steinbruegge,[2] Schwartze,[3] and Weydener,[4] of cholesteatoma pearls in the substance of polypi of the middle ear.

It may not be improper to mention here that Politzer has found cholesteatoma pearls in the substance of the mucous membrane in chronic inflammation of the middle ear, and that he believes that some large cholesteatoma may arise from these.[5]

New light has lately been thrown upon this subject by the researches of Habermann[6] and Bezold.[7] It is shown that when large perforations exist, and especially when the drumhead becomes adherent at the edges of the perforation with the inner wall of the middle ear, or when the tip of the handle of the malleus becomes adherent to the promontory—the prominent portion of the inner wall, which lies opposed to it—(conditions which are very common when the perforations are large), the epidermis or external layer of the drum membrane "gains ascendancy over the mucous membrane, and extends with much greater rapidity over the entire district."[8] This is analogous to the development of epidermis in the bladder, urethra, and kidney from a vesical fistula after an operation for stone.[9]

This fact, which is now accepted by many, is explained by the peculiar lateral growth of the epidermis of the drumhead and external auditory canal, which is seen in the slow migration of blood-specks from the center to the periphery of the drum or the formation of long, rolled-up ribands (Bezold), or of "a membranous diaphragm" in the auditory canal at a distance from the drumhead (Buck)—[10] both being shed epidermis, which owe their form to the "surface motion" peculiar, so far as is known, to the epidermis of this part. The proof that epidermis may extend from the tip of the handle of malleus into the antrum[11]—the most common seat of cholesteatoma—and give rise to such a growth was furnished by a pathologic specimen of Habermann.[1]

Bezold,[2] who accepts this view of the migration of epidermis from the external auditory canal into the middle ear, has lately extended its significance. He is convinced that simple tubal catarrh is frequently the cause of retraction and perforation of Shrapnell's membrane, a fact pointed out by Walb.[3] He believes that the edges of such perforations adhere to the walls of the space within (Prussak's space), and that extension of the epidermis over the walls of these spaces will follow, the cavity will be filled by desquamation—in short, the nucleus of a cholesteatoma is formed. It increases in size, and extends into the antrum. Thus Bezold explains the fact that the antrum and upper part of the middle ear are often the seat of cholesteatoma, and the other fact that cholesteatomatous matter was found in almost all of his cases of chronic suppuration with perforation of Shrapnell's membrane. He does not insist upon this being the only manner in which cholesteatomata are formed, but he holds that many are produced in this way.

Politzer believes that the tendency of the epidermis to extend into the middle ear is much greater at the periphery of the drumhead than in the center, and he calls attention to the fact that cholesteatoma is more common when the perforations are peripheral than when they are central. He describes several pathologic specimens which sustain this view.[4]

There are, then, various ways of explaining the presence of epidermis in the middle ear. It is certain, however, that this alone does not furnish the explanation of the growth of cholesteatoma, but that, as Steinbruegge[5] suggests, there are other unknown conditions necessary for their development.[6] Steinbruegge believes this factor to be a chronic dermatitis. This would ally the affection with desquamative inflammation of the auditory canal and the drum membrane.

If we bear in mind the cases of cholesteatoma that have been reported, without any history of previous inflammation, while, on the other hand, it is certain that many owe their origin to inflammatory affections of the middle ear, we will hesitate to accept any explanation as the only one. As is frequently the case, so here it is probable that the various theories do not conflict, but that each serves

[1] Arch. f. Ohrenheilk., xxvi, p. 63.
[2] Arch. of Otol., xi, p. 376.
[3] Arch. f. Ohrenheilk., vii, p. 304.
[4] Arch. of Otol., xiv, p. 77. [5] See his text-book.
[6] Arch. f. Ohrenheilk, xxvii, p. 42; Naturforscher-versammlung in Heidelberg, 1889.
[7] Zeitschr. f. Ohrenheilk., xx, p. 5; Arch. of Otol., xix, No. 4.
[8] Bezold: Archiv. of Otol., xix, p. 242.
[9] Case of Marchand, see Glaeser, Virchow's Archiv., Bd. 122, p. 40.
[10] Manual of Disease of the Ear, p. 98. New York, 1889.
[11] A cavity above and communicating with the middle ear.

[1] Loc. cit.
[2] Loc. cit. [3] Arch. f. Ohrenheilk, xxvi.
[4] Wien. med. Woch., 1891, No. 8.
[5] Steinbruegge: Orth's Spec. Path. Anatomie.
[6] A number of cases have been published (Schwartz, Politzer) in which epidermis lined the middle ear, but which showed no trace of cholesteatoma or desquamation. See Politzer, Wien. med. Woch., 1891, No. 9.

as the true explanation for different cases, or as Kuhn[1] puts it: "Cholesteatoma of the temporal bone is either a true heteroplastic tumor, as Virchow believes it to be in all cases, or it may also develop, and perhaps in many cases, in the course of chronic suppuration of the middle ear, from epidermis which has grown into the tympanic spaces from the perforated drum or the external auditory canal, and which has slowly and continually kept shedding its horny layer, thus forming the stratified cholesteatomatous mass." To which I should add: or it may sometimes result from desquamation of the mucous membrane, which has become metamorphosed into epidermoid tissue (Wendt).

Concerning the *symptoms* and the diagnosis of this disease, little need be added to what is contained in the clinical histories narrated. In themselves the tumors are likely to cause few symptoms, as is seen in the case of Kuhn, and in Case III. (In the latter there was pain, but this was probably due to the purulent collection behind the growth which could not find an exit, and to ulceration of the dura mater.) They often tend to perpetuate an otorrhea or cause its recurrence.[2]

The *diagnosis* can be made when the masses are seen in the middle ear or auditory canal (Case II), or when smaller or larger flakes made up of the characteristic cells are washed out of the middle ear, especially when they are regularly lamellated (Case IV). There are unquestionably many cases of chronic otitis media in which there is slight desquamation of epidermoid cells, but in which cholesteatomata are never formed. Yet I believe that all cases in which such matter is found deserve special attention, and that they must be considered with suspicion when coming from the attic of the middle ear.

The *treatment* has been suggested by what has been said in the clinical histories. It consists in thoroughly and frequently cleaning the middle ear with injections of warm water, which may contain mercuric chlorid (1 : 5000), hydrogen dioxid, resorcin, carbolic acid, etc. The ordinary tip is rarely sufficient to force the steam into the recesses of the middle ear. Special canulas, which are narrow and long and curved at the tip (Hartmann's is one of the best), will enable the operator to reach these parts, even when the perforations of the drumhead are small. In case the opening is too contracted, it must be enlarged. (See Case IV.) When it is difficult to wash out the middle ear through the external auditory canal, we can sometimes succeed with injections into the Eustachian tube, as is recommended by Politzer and others. It is usually necessary to use the probe and the forceps, together with the injection of fluids. Polypi and carious bone must be removed. After the middle ear has been thoroughly cleaned, it is to be dried with cotton and by inflating air, and this is to be followed by the insufflation of powdered boric acid, iodoform, or a mixture of boric acid and salicylic acid (Siebenmann[1]), etc., or the instillation of alcoholic solutions of the same remedies. It is believed by some that we can thus alter the character of the lining membrane, and diminish or prevent the desquamation.

The operation of removing the ossicles has been recommended by Bezold, Stacke,[3] Kretschmann,[3] Kessel,[4] and others; but Politzer believes that this is indicated only in those cases in which "the greater part of the drumhead is destroyed, and there is only a minute portion remaining attached to the malleus, in which cases the malleus and the incus are of no service in hearing. Extraction of the malleus is indicated in only those cases of perforation of Shrapnell's membrane in which caries of the head of the bone has been determined by examination with the probe, or when hearing is greatly diminished. In those cases in which there is slight deafness (as is often the case in perforation of Shrapnell's membrane), extraction of the hammer is to be performed only under urgent circumstances and threatening symptoms, for there is a possible danger of injuring the hearing."[5]

The question of opening the mastoid process is still to be considered. When there is reason to believe that it is the seat of a cholesteatoma, it should be opened. It is difficult to determine this, unless there are local signs. When large quantities of cholesteatomatous matter are found in the discharge, and the process is sensitive to the touch or to pressure, or there is long-continued, deep-seated pain, we can make the diagnosis with much probability. Kretschmann[6] holds that the operation is indicated if the offensive odor of the discharge persists, after removal of the ossicles and irrigation of the attic.

It is important to remember that there is a great tendency for cholesteatomata or cholesteatomatous masses to recur. Patients are to be examined at intervals of a few months for a long time after there is apparent cure.

[1] Arch. of Otol., vol. xx, p. 303.

[2] The compact mass swells when placed into water. There are cases in which very acute and dangerous symptoms have arisen from getting water or steam in the ear and in contact with the cholesteatoma.

[1] Correspond.-blatt. f. Schweizer Aerzte, xxi, October; reviewed in American Journ. Med. Sciences, December, 1892.

[2] Tenth Internat. Med. Congr., Berlin.

[3] Arch. f. Ohrenheilk., xxv.

[4] Ibid., 1880, xvi.

[5] Politzer: Wiener med. Woch., Nov. 12, 1891, p. 518.

[6] Arch. f. Ohrenheilk, xxv, p. 165, reviewed in Arch. of Otol., xvii, p. 267.

THE TREATMENT OF THE INSANE OUTSIDE OF ASYLUMS.[1]

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IT is only a short time since in Christendom the insane were believed to be cursed and possessed of devils. In some parts of heathendom, on the other hand, they were supposed to be blessed, in that their souls had been removed by God. Medieval treatment was founded upon that pathology. One portion of the world ducked, whipped, tortured, chained in dungeons, and occasionally burned the insane to death. Upon the whole, the heathen have treated their insane comparatively well.

After a time, many of the therapeutic measures employed by the Europeans of the Middle Ages were abandoned as unsatisfactory. But society still had to be protected; so the insane were fettered in the cells of jails and fortresses, and solitary towers, until a realizing sense of the inhumanity of such treatment struck a responsive chord somewhere in the breast of a Tuke, a Connolly, a Pinel, a Rush, a Kirkbride, an Earle, and doubtless other but unknown immortals, both before and after them. Thus, gradually insanity came to be regarded in the light of a disease, and, instead of prisons, special buildings were set apart for the particular custody of the insane. The great object of the asylums at first was to afford protection to society from lunatics, to protect them from themselves, and to provide for their care and support, when at public cost, in an economical manner. A hundred years ago, however, the asylum was still a species of jail, for its evolution had not yet proceeded far. Dungeons, and iron chains, and staples in stone walls and stone floors, were still in use in many places. Indeed, it is even less than eighty years ago since Norris, a patient in Bedlam (Bethlehem Hospital), in the great Christian city of London, was kept for twelve years in a cell with an iron collar riveted around his neck, and iron bands and rings around his waist, arms, and ankle, the neck being fastened to the wall, and the leg to a rude box of filthy straw.

The asylum having evolved so recently from the prison, it is not strange that it should in some places still possess rudimentary structural appendages and organs which are reminiscent of its embryonal stage; nor is it remarkable that a certain sense of disgrace or stigma has been popularly attached to confinement in an asylum. The people have still to be educated to the idea that insanity is a disease often requiring treatment of a particular nature in the special institutions built for the purpose, and that the asylum is rapidly becoming a pleasant refuge for the hopeless and a hospital for the curable cases of mental disorder.

It is a wise move to change the name "asylum" to "hospital," for it will aid in the diffusion among the people of a true conception of insanity, as now understood by medical men. But there are comparatively few, even in the profession, who are aware of the great improvements which have been made in asylums of late years; how the depressing barren halls and wards and naked floors have given place to pleasantly furnished and carpeted, cheerful-looking parlors, sitting-rooms, and bedrooms; how muffs and strait-jackets have disappeared; how the unintelligent attendant has in many instances given place to the trained nurse; how every new means of treatment is carried out in some places to the best of the ability of the asylum physicians; how schools, employment, theatricals, music, and out-of-door walks are provided in the place of the old deadly monotony, and, in fact, how the asylum has gradually undergone a metamorphosis, until its character has completely changed. There are, to be sure, not many perfectly ideal institutions as yet in existence, but there are some which approach very near to it, as, for instance, that at Alt-Scheritz near Leipzig, and the new asylum at Rome, both of which I visited and described in 1887.[1] These are, of course, constructed on the cottage and pavilion plan, so arranged as to impress one as small colonies or villages, with separate buildings for those merely there for custody because of dangerous propensities, those brought there to be cared for kindly during the remainder of their useless lives, those who carry on various occupations, and finally, for such as enter particularly to secure treatment for the brain-malady which has bereft them temporarily of their reason.

I will say that I believe improvement and reform are constantly going on in asylums throughout the world, that no one is more anxious than are their superintendents to make progress in the care and management of the insane. They are rapidly reaching the best methods of dealing with the insane poor. If any are tardy in this advance, it is because they are so often hampered by the never-ending over-crowding of our public asylums, by the interference of politics, by the lack of money, by the want of a sufficient number of medical assistants, and by a multiplicity of official duties.

While these statements are undoubtedly true, and great credit is due the asylum-physicians of the present day for their strenuous efforts in behalf of their charges, I believe that the *ideal* treatment of almost any insane person is to be sought outside of an asylum. After an asylum-experience of some years,

[1] Read before the N. Y. County Medical Society, Feb. 27, 1893.

[1] "Some European Asylums," Am. Journ. Insanity, July, 1887.

and an experience of many years, too, in private practice, I feel that I am in a position to judge fairly well of the relative merits of treatment in and out of asylums.

Theoretically, it ought to be the right of every individual in sickness to receive the best treatment that medical science affords; but this right can be enjoyed by very few. There are too many interfering conditions. Not every injured man is within reach of the best surgeon, not every fever-stricken one convenient to the best physician, and few are the deaf, the blind, the lame, those with crippled bodies, and those with disordered minds, who ever really receive the best treatment that the world can give. The intelligent doctor and the scientific skill are not the only requisites. Other conditions are good nursing, the most suitable climate, the best hygienic surroundings, the best moral atmosphere. In dealing with affections of the body solely, there is often much to be desired; but it is particularly in the treatment of those who are mentally as well as physically afflicted that so much which should be done is left undone. The obstacles in the way of securing the best treatment are multiplied in the case of the insane by the dethronement of the will, the reason, the judgment, and the emotions.

Just as a hospital is a better place than a tenement-house for a surgical patient, or a case of fever, so is the asylum superior to the home in the caretaking of the pauper and indigent lunatic. The acutely insane of the poorer classes are best treated at present in our large State institutions; and those of the moderately well-to-do, either at home or in the small private asylums. Only the insane of the wealthy classes can perhaps enjoy and carry out ideal methods of treatment, in their own homes, in country-houses, or in foreign travel.

It is, of course, needless to say that there are many degrees of insanity; that there are hundreds of cases that are never obliged to go to an asylum at all; that in society are many insane people carrying on legitimate occupations, and caring for themselves and families; and that, on the other hand, there are cases for which nothing but commitment to an asylum would be suitable or feasible. I have many insane people who visit me at my office, or at clinics, who are regularly following their vocations. Two very insane sisters are private patients of mine. I have described their condition in a paper on *folie à deux*.[1] One teaches music; the other is a book-agent. For twelve years they have been supporting themselves, and laying up money for a rainy day. Another case is in a night-watchman. Another has for years been switching hundreds of trains daily on a great railroad. Another is a young wife with a worthless husband, who cares for the household and supports her children. Another is a bookkeeper; another is a private secretary; another is a superintendent of a manufactory. Two or three are authors of noteworthy books, and support themselves by their valuable contributions to literature. They are all marked cases of chronic or subacute insanity of one form or another. Less noticeable cases at large in society are legion; so that it would be idle to dispute the fact that there are great numbers of insane persons who do not require to be put into custody. Indeed, we should not send any patient to an asylum, unless he needs restraint because of danger to himself or others, or because proper treatment and supervision are difficult in his home, owing generally to poverty or other insurmountable conditions. The sooner a case of acute insanity, occurring in a pauper or indigent, is removed to an asylum the better are his chances for recovery. With cases of acute insanity in those who are able to afford the expense of trained nurses at home, the case is different. It would seem unfortunate to have to send a patient to a large asylum, with its locks, its bars, its associations, its over-crowding, its commingling of the intelligent and the refined with the offspring of the slums, and its inevitable stigma, when the case may prove to be mild, with an early recovery. How much better to make the trial of treatment at home! Naturally, the responsibilities of the physician are often great with an insane patient in a private house, and it is certainly true that the asylum seemingly affords considerable protection from death by exhaustion, suicide, and the like. I say *seemingly*, for this protection is really not as efficient as is generally supposed. From the annual reports of the New York State Commission in Lunacy I gather that the number who die from exhaustion in the public asylums of the State of New York yearly is much over 150, and that the number of suicides of patients committed to their care is in the neighborhood of 15 per cent. These facts are noted merely to show that the asylum is not an absolute protection against the death of a patient by exhaustion from mental disease or suicide, and that in view of this we may treat many patients at home with a clear conscience, and with little greater risk, always providing that the room and the nurses and minor essentials are at our command.

I believe it is not fully appreciated how much the asylum-authorities are striving to do to effect improvement in the methods of management of the insane. Not only is the asylum itself undergoing a metamorphosis, but managers are actually doing all they can to extend the treatment of the insane *outside* of asylums. This is evident, for instance, from the fact of the opening of out-door departments or dispensaries in connection with some of

[1] "Paranoia in Two Sisters." Alienist and Neurologist, Jan., 1890.

them, thus enabling those suffering from mental disorders in the earliest stages, or of the milder types, to obtain skilled treatment without entering the asylum at all, without being deprived of their liberty and rights as citizens. This was first undertaken by the West Riding Asylum in 1889, and has been so successful that it was determined to extend the system to other English asylums (Menston and Wadsley). Not only this, but in Scotland and in some parts of our own country, they actually send their quieter patients from the asylums out to board on farms in the country instead of keeping them massed together in large buildings with their more disturbed brethren. Then, too, some of the large asylums of this country have successfully inaugurated agricultural colonies, several miles distant from the main building, where quiet patients are sent to live in cottages or pavilions "far from the madding crowd." (This plan has been very successful at Kalamazoo and elsewhere.)

In connection with this matter of the treatment of the insane poor, especially of the acute class, another feature was brought up by the author for consideration before the New York Neurological Society, in January, 1890, and in various editorials subsequently, viz.: the admission of the acutely insane to general hospitals. The proposition made was that a law should be passed that nothing in the lunacy statutes should be construed to interfere with the reception and treatment of acute cases of insanity in chartered general hospitals, in the same manner and under the same conditions as patients suffering from other diseases are there received and treated, provided that such hospitals have suitable accommodations, approved by the State Commission in Lunacy. Thus, any of the sixty-five or more chartered general hospitals of this State would be empowered to receive and treat such cases, if they so desired, and every town and city would in this manner be provided with one or several emergency wards for the acutely insane; and who can estimate how much good would thus be accomplished, not only to the particular patients admitted and treated, but to a vast number of other patients, by the training of the nurses, hospital internes, and attending physicians, in clinical psychiatry?

Some fourteen years ago the writer was resident physician in a general hospital with a hundred beds, in a large city. There was no asylum within 200 miles, consequently emergency cases of insanity were sent in from the city and its immediate vicinity to the general hospital for a temporary sojourn. If quiet, they were treated in private rooms; if disturbed, in a pavilion. They were not more difficult to handle, even at their worst, than the cases of delirium tremens that were frequently admitted. This, too, was a hospital not specially arranged for such cases. Those who are familiar with Vienna, Berlin, Strassburg, Bremen, Leipzig, and Paris, and other Continental cities, know that provision is made in many of their general hospitals for acute cases of insanity. Several years ago the Victoria General Hospital opened reception wards for the insane. In connection with the new clinic for mental diseases at Königsberg, a department for the insane was recently opened in the town hospital, so that now every Prussian university (except Kiel) has a clinic for diseases of the mind, in most cases connected with some general hospital.

Nor do we have to go out of our own country to find other instances of the insane occupying wards or pavilions in general hospitals. We have notable examples in Bellevue, in the Marshall Infirmary at Troy, and in the Philadelphia Hospital.[1]

There is the greater necessity for some such provision, as, unfortunately, in almost every town and city of this great Union, except New York City, the jail and the station-house at present serve in the capacity of reception-wards for the acutely insane. It will mark a great advance, therefore, in the treatment of the insane, when general hospitals open their doors and make special arrangements for the reception of acute cases, and their detention for a reasonable period of time, say a month or more, which would in many instances obviate the commitment to an asylum by process of law altogether.

In the largest cities there should be at the disposition of medical faculties a clinic of some kind for mental disorders. This want might, perhaps, be best met by the establishment of psychopathic hospitals on the plan of the psychiatric clinics in foreign universities, small hospitals receiving from fifty to one hundred cases of insanity, provided with laboratories for the study of the physiology and pathology of the central nervous system, ideally constructed in the midst of the city, and fully equipped for the best scientific treatment of patients, and the thorough instruction of students in the elements of psychiatry.

The lines of advance, then, in our care of the insane of the poorer classes outside of asylums are: (1) the opening of special reception-wards or pavilions in general hospitals; (2) the establishment of psychopathic hospitals in large cities; (3) the colonization and boarding-out of the quiet chronic inmates of asylums; (4) the creation of out-door departments in connection with asylums situated in densely populous districts.

When people are sufficiently well-to-do, the ideal

[1] In his last report of the Philadelphia Hospital, Dr. Hughes, the superintendent, speaks glowingly of the advantages to patients of the new system that had just been adopted, of receiving insane patients in special wards. He reports 50 per cent. of cases cured, commitment to an asylum having been unnecessary.

methods of treatment are, of course, to be found outside of an asylum. The insane of this class may be treated at home, or in a seashore cottage, in a country house, or they may go travelling in the charge of a physician and a nurse. The kind of treatment best adapted to the nature of the case must be decided by the physician. The quiet of a private house in the city or country is best for some cases, while the tonic and stimulus of foreign travel are indicated in others. It may be stated that when travel seems to be the prescription required, the greater the change from the environment in which the mental disorder developed, the better. The cities of Great Britain and the Continent do not differ essentially from our own cities, and patients should not be sent to such places with the idea of securing a change of environment. Norway in summer, and Egypt in winter, are regions which offer the greatest inducements in the way of tonics to the nervous system, and stimulus to the mind, and both are at the same time peculiarly restful and calmative.

If these methods of home, country house, or travel are for any reason impracticable, then the smallest private asylum that can be found is to be selected, for the fewer other insane people and the greater number of sane people the patient comes in contact with, the better will be his chances for recovery. There is a need for physicians in practice in the country who will be duly authorized and empowered by law to receive in their own homes and care for one such patient. The chief drawback in home-treatment, if long continued, is usually the bad effect of association with an insane person upon other members of his family, particularly if they be neuropathic. With a sufficiency of nurses and room, there is no contingency in the treatment of the insane that cannot be guarded against. These being provided, the worst features in a case, such as violence, homicidal and suicidal tendencies, attempts at self-mutilation, etc., may be as well avoided outside as inside of an asylum. There are cases in which, though I am opposed to mechanical restraint in great measure, I should employ long-sleeved night-gowns, or even camisoles, rather than let them go home before all means of cure had been tried at least for a few weeks' time.

The conditions and propensities that we have to combat are many. The choice of method must be the result of careful deliberation, and after judicial survey of all the features presented. We usually need the assistance of skilled and experienced nurses. Thanks to the asylum training-schools, there are numbers of such trained nurses of both sexes to be had in our large cities.

In acute cases, whether of mania or melancholia, it has been my experience that confinement to bed is a valuable factor in cure. Hence, on being called to such a case, I have the patient put to bed. Due precautions are taken as to the removal of all sharp instruments, weapons, drugs, cords, door-keys, and the like, and by a simple device the windows so arranged that they may not be opened beyond six inches; otherwise the furnishings may be left as they are without attention.

Insomnia and mental and motor excitement most frequently demand our best skill. In emergency, I am in the habit of using duboisine sulphate hypodermatically in the dose of one-hundredth of a grain, or sometimes hyoscyamine, or hyoscin hydrobromate in doses of from one-hundredth to one-sixtieth of a grain hypodermatically, though these latter are not as satisfactory as duboisine. But for routine treatment of insomnia and maniacal excitement I much prefer hydrotherapy to drugs. In some cases the prolonged warm bath (70°–90°) for from one-half to two hours may be used, but in all cases the hot wet-pack is applicable. For full details as to these procedures I would refer to my paper on "Hydrotherapy in the Treatment of Nervous and Mental Diseases."[1] Sometimes when the wet-pack does not suffice to quiet fierce maniacal excitement, I use duboisine in addition, or give doses by the mouth of paraldehyde or sulfonal, both of which are valuable hypnotics.

In acute depressed conditions, on the other hand, opiates usually act best in cases in which hydrotherapy does not subdue the insomnia, distress of mind, and disordered nervous system. Among opiates, codeine seems to offer advantages over others, and the contraction of a habit need not be feared. The refusal of food is another element of danger. Acute insanity, besides rest in bed, quiet and repose, needs overfeeding to balance the great waste of tissue going on in the system. While many cases of acute mania will eat and drink ravenously at times, from the nature of things their actions are uncertain, and the nurse should be instructed to feed the patient almost hourly and keep account of what is given. Milk, raw eggs, meat-juice, and occasional stimulants, must in extreme cases be our chief reliance. Having an intelligent and assiduous nurse at hand, the necessity of feeding with a tube will only rarely occur. When required, the soft rubber stomach-tube may be introduced by the physician through the mouth or nose, a funnel attached, and the liquid mixture of the substances named allowed to flow in. I cannot here refer to many other morbid conditions that must be met by appropriate medication, and by moral treatment as well in acute as in subacute and chronic forms of mental disorder. There are cases (some of the insanities of puberty

[1] American Journal Med. Sciences, February, 1893.

and adolescence, and other forms) in which anaphrodisiacs modify distinctly the trend of delusions. There are cases in which intestinal antiseptics achieve noteworthy results; indeed, the instances are few in which attention to morbid states of the alimentary canal is not rewarded by considerable benefit to the mental condition of the patient. Arguments with patients upon delusions more or less fixed in character, often has, despite the opinions of numerous alienists to the contrary, decided value in altering their beliefs, and at times even eradicating their insane ideas altogether. It is true that occasional argument is generally of no avail. Such moral treatment must be sedulously and perseveringly employed, daily and for weeks or months, to insure success. Argument is a species of suggestion.

In closing, I cannot but look forward to the time, which passing events foreshadow, when insanity will be recognized as a disease of the brain by the laity as well as by the medical profession; when more of those thus afflicted will be treated in their own homes, and still large numbers in psychopathic and general hospitals; to the time when our present large aggregations of the insane will be disseminated in farm-houses and colonies, and the huge structures now containing them be disintegrated into smaller buildings regularly distributed over large grounds on the community or village plan.

201 WEST FIFTY-FOURTH STREET.

PYLORIC OBSTRUCTION.[1]

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IN order to discuss with any promise of success the treatment of pyloric obstruction, it would appear urgently indicated to pass in review its possible causes and our means and methods for an early diagnostic recognition. Like other important organs in the body, the stomach is becoming more and more the subject of a direct physical and chemical examination, and it is desirable that an exact recognition of its physical conditions should, as in other organs, be followed by successful direct treatment of a medicinal or surgical character.

The causes of pyloric obstruction are almost always of an intrinsic character; exceptionally only is the condition due to adhesions outside of the stomach, or to growths which from without mechanically press upon the pylorus, and rarely to acute flexions or twists.

The intrinsic causes are: contracting cicatrices of gastric ulcers, the rare submucous proliferation of the connective tissue interfering with its dilatability, and finally, the presence of a malignant growth.

As long as the examination of the tongue constituted the only or principal means of study of stomach diseases, a differential diagnosis was reached at so late a stage of the disease that surgical interference was out of court, or fatal.

Sooner or later all forms of pyloric obstruction give rise to dilatation of the stomach, vomiting at variable periods after food-ingestion, fermentation of stomach-contents, constipation, and emaciation.

The fact of the dilatation can be easily recognized by percussion, by the stomach-tube being felt through the parietes, and by filling of the stomach with gas or, preferably, water. Gastrectasia from atony of the gastric musculature, by its own history of chronicity, of gastric catarrh, of excessive eating and drinking, and of its great curability by lavage, is readily excluded, and the diagnosis of dilatation of obstruction arrived at.

Whether the two following tests constitute actual demonstrations of obstruction I am not able positively to assert, but they are surely corroborative and of value. Ewald recommends the giving fifteen grains of salol, which in the stomach remains inert. In the intestine, by the action of the alkaline juices, it splits up into carbolic and salicylic acids. The absence of salicylic acid in the urine would show that the salol had not passed the pylorus, provided the kidneys are acting normally. Another test is as follows: An ounce of oil introduced into the stomach, and recoverable some hours later by the siphon stomach-tube, would mean impassable obstruction of the pylorus.

Cicatricial obstruction brings the history of preceding ulceration, known by its dull, continuous pain and its paroxysmal increase upon taking food, its bleeding, by its occurrence in the comparatively young, in the chlorotic or anemic, and its gradual healing. In gastric ulcer, according to Riegel, the acid constituent of the gastric juice is greatly in excess; and in dilatation due to cicatricial obstruction, free hydrochloric acid will generally be demonstrable. The absence of free hydrochloric acid from the stomach in pyloric obstruction (the meal-tests of Leube and Ewald having been observed), demonstrated by the Günzburg phloroglucin-vanillin test, would be strong evidence of carcinoma ventriculi.

With advanced emaciation a pyloric tumor becomes discernible, and with it, generally, exceeding dilatation of the stomach and enormous displacement will be noticeable. In one case upon which I operated the pylorus was felt three inches below and to the right of the umbilicus; in another, also the subject of operation, the tumor presented in the

[1] Read before the St. Louis Surgical Society.

left, and was readily moved across to the right iliac region.

The modern methods of examination of the stomach, as taught by Leube, Einhorn, Günzburg, Riegel, Oser, and others, bring us nearer to an exact diagnosis of its diseases. In cases of legitimate doubt, an exploratory operation should be urged upon the patient.

Pyloric obstruction from any cause, if not relieved, leads to the death of the patient. No medicinal treatment is curative. A great deal may be accomplished for the relief of the patient's sufferings, and the prolongation of life. The most promising of all remedies is the emptying by washing of the stomach every second or third day, by means of the soft-rubber siphon stomach-tube; the patient's diet should be rigidly limited to food capable of being absorbed by the stomach, and, with its reduced digestive power, predigested food would appear indicated. The abstaining from stomach-feeding absolutely for a few days at regular recurrent intervals of three or four weeks, and the substitution during that time of rectal alimentation, will distinctly benefit the patient.

Pyloric stricture, however, is a surgical disease, and, as Senn tersely puts it, can be successfully dealt with only by surgical means. In a paper (THE MEDICAL NEWS, May 10, 1890, p. 503) on the subject of "Pylorectomy and Gastro-enterostomy for Pyloric Obstruction," I gave a fairly full account of the fact that the general consensus of opinion of surgeons was against the utility, and of some against the legitimacy of pylorectomy for malignant pyloric stricture.

To re-state the position, I will quote from my former paper:

"In Mr. Greig Smith's classical work on *Abdominal Surgery*, page 392, we read:

"With these results before us, we must admit that if pylorectomy is to be considered anything more than a mere 'surgical exercise,' it is to be contemplated only in a very carefully selected class of cases. If the patient is not in fairly good condition, if the stomach is greatly dilated, if the growth is large, fixed, and displaced, the operation should not be contemplated. And even when the opposite conditions are present, it is doubtful if it could ever be a surgeon's duty to advise the operation; he ought to undertake it only at the patient's urgent request, and after fully and honestly explaining to him the hazardous risk which he undergoes."

The inadequacy of the statistics on the subject may be readily appreciated by a reading of the section on the "Surgery of the Abdomen," by Mears, in the *Annual of the Universal Medical Sciences*, for 1889, page 25.

Professor Buchanan, with regard to the propriety of performing the operation in carcinoma, quotes the opinions of Butlin, and of Billroth, as given by his assistant, Salzer. The former says:

"The excessive mortality due to the operation; the rapidity of recurrence in what have appeared to be most favorable cases for operation; the return of the symptoms of obstruction in some, if not in many, of the cases, and the fact that there does not appear to be one case which can be claimed as a genuine cure, lead me to doubt whether the operation of resection of the pylorus for cancer is ever a justifiable operation."

Salzer states that "Billroth does not only consider the operation of resection of the stomach a justifiable one, but he continues operating with good results in many cases. Of course, he does not operate in cases of carcinoma, if there are already infiltrations and adhesions to the liver and pancreas. In these cases he prefers Woelfler's operation of gastro-enterostomy."

Statistics seem to show but little improvement since the foregoing was written, and I will now quote from Senn's admirable and hopeful paper, "On the Surgical Treatment of Pyloric Stenosis," published in October, 1891:

"At the Berlin International Medical Congress (1890), Billroth gave an account of twenty-seven pylorectomies, all of which were performed either by himself or his assistants. Of this number twelve recovered from the operation, and fifteen died. Of thirteen pylorectomies for carcinoma which survived the operation, five died after ten months, and one after five years and three months after the operation, from recurrence. There were yet living three women at the time the report was made, of whom two had been operated upon two and one-half and four and one-fourth months previously. Of six resections of the pylorus for cicatricial stenosis, three recovered."

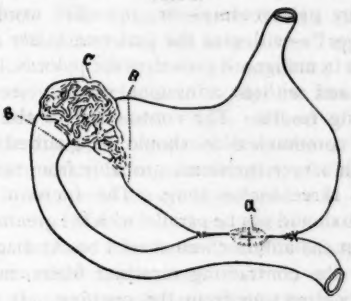
A careful study of most of the recorded cases makes apparent the fact that, almost always, operative procedures were resorted to in patients in an advanced stage of the disease, and in a condition of utter exhaustion. May we not hope for better results with an early diagnosis and an improved surgical technique? When the growth is still limited to the pylorus, and is perhaps of the annular kind, with no secondary involvements or adhesions to other viscera, and the patient is in fair condition, I believe the removal of the growth to be as legitimate and as surely indicated as that of malignant growths elsewhere. Pylorectomy, the Billroth operation, in the hands of its most able and skilled advocates, requires from two to three hours for its performance, and most patients so operated upon die in shock. An operation requiring less time, and fairly accomplishing the same end—that is, the radical removal of the growth—should have some claims for careful consideration. The operation referred to will be best understood in connection with the following case.

(An account of the operation, performed for the first time in March, 1890, was published in THE MEDICAL NEWS of May 10, 1890, and was followed by the publication of two cases by Bull, of New York.)

Mrs. B., fifty years of age, married, the mother of six children, German by birth, had suffered for some months with disease of the stomach, when she presented herself for treatment in March, 1891. She had lost considerable flesh, but was not extremely emaciated. She vomited large quantities of food every thirty-six or forty-eight hours, had no appetite, and was constipated. Physical examination revealed great dilatation of the stomach, and the pylorus movable in the left iliac fossa. A woman of exceptional nerve, she readily consented to an operation. I had proposed a gastro-enterostomy after Senn's method, and thought of following it in a few weeks by a pylorectomy. I made an incision over the tumor, which I had pushed to the median line, and found the pylorus free of adhesions. I then drew forward the stomach, found without much difficulty the jejunum, and placed both in easy apposition upon the parietes, with sponges packed underneath and warm aseptic towels around them. I selected a place four inches from the pylorus on the anterior surface of the stomach (that distance, in view of the later pylorectomy) and two inches above the omental attachment, made an incision an inch and a half in length through the coats of the stomach, introduced my finger into the cavity, examined the pylorus from within, and found it almost impermeable. I then made an incision of the same length into the free margin of the jejunum, and completed the operation by Senn's method, which needs no further description. The patient recovered nicely from the operation; vomiting persisted for three days, and then gradually ceased, and the patient commenced to improve in general health. Two weeks after the operation the patient contracted grippe-pneumonia, which made her very ill; nor did she recover from its effects for eight weeks. With her gradual improvement she became very urgent for the second operation, and insisted upon having that lump, which she could feel in her belly, removed. Three months after the gastro-enterostomy, with the patient in fair condition, I removed the pyloric tumor. A careful examination showed no extension of the disease. I separated the great omentum along the greater, and the gastro-hepatic omentum along the lesser curvature of the stomach, by cutting between ligatures introduced with the blunt needle. The ligature was cut at the loop, one thread drawn toward, the other from the stomach, until separated an inch from each other, when each was tied and the intervening omentum cut. A clamp was applied to the duodenum an inch from the growth, and another one to the stomach somewhat further away. The isolated tumor was now cut off with the scissors. I then closed both stomach and duodenum by interrupted sutures passing through all the coats, then invaginated each end, turning the ends in about one-half inch each, and closed by interrupted Lembert silk sutures. The patient made an uneventful recovery.

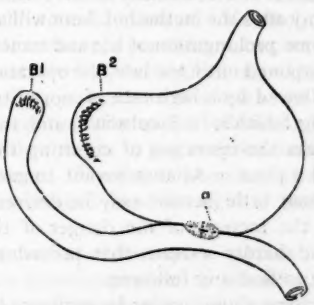
The accompanying cuts fairly illustrate the operation.

FIG. 1.



a. Anastomosis complete.
B, B. Lines of excision.
C. Malignant growth.

FIG. 2.



a. Anastomosis.
B^1. Closed end of duodenum.
B^2. Closed pyloric end of stomach.

The occurrence of more or less regurgitation of food during the first six days was somewhat disturbing. On the tenth day after the operation the patient sat up in bed and was photographed. She remained in the hospital for five weeks longer, and left because of the excessive heat. I heard nothing of her for some little time, when, in October following, my assistant, Dr. Perkins, was called to see the patient. She was having an attack of vomiting and purging, caused by some improper food; a baby and an older child in her family were similarly affected. They all died within forty-eight hours of the attack. Dr. Perkins with Mr. Deutsch, a senior student, secured a post-mortem examination, and I now possess the specimen of the stomach and bowel. There is nowhere visible a return of the disease, and a careful search in the abdomen revealed no glandular enlargement or other secondary involvement. The specimen, however, teaches a very important lesson. The opening between the stomach and bowel had grown very small, until there remained only a small fistula through which we could pass a lead-pencil.

Each of the operations did not occupy more than

thirty-five minutes, and might, with more practice, have been performed in less time.

I believe the operation by making a gastro-enterostomy, allowing the patient to be well nourished and strengthened, and following in about three weeks by pylorectomy—or, in other words, "in two stages"—will give the patient a better chance, and that in malignant growth of the pylorus, limited, recent, and without adhesions, we may secure encouraging results. The contraction of the gastro-enteric communication should be guarded against by much larger incisions, probably from two and a half to three inches long. The incision in the stomach should not be parallel with the greater curvature, but the anterior wall should be cut diagonally, so that the contracting muscular fibers shall pull in every direction from the opening. It may be that the cutting out of a narrow elliptical piece would meet the indication still better. In malignant growths of the pylorus, in an advanced state, with adhesions and secondary involvements, gastro-enterostomy after the method of Senn will afford the patient some prolongation of life and some comfort. If not postponed until too late, the operation should not be followed by a high rate of mortality.

In Greig Smith's, in Jacobson's, and in Treves's latest works the operation of curetting the pylorus has found a place. As an adjuvant to gastro-enterostomy some little benefit may be derived from it, although the increase of the danger of the operation would hardly warrant that procedure. It is not likely to find any followers.

Pylorectomy should never be performed for non-malignant obstruction, as better and less dangerous methods have been devised, and some of which seem to promise well. Digital dilatation of the pylorus after gastrotomy, according to Loretta, has been resorted to some forty times, with improvement, and some recoveries have been reported. The *cure* of the stricture by forcible dilatation seems to be an exceptional result not secured in any other organ. With a longer period of observation we shall probably learn of a good many relapses; nor is the danger of laceration of the peritoneum and of adhesions to be underrated. The coming operation for cicatricial pyloric obstruction seems to be the Heineke-Mikulicz pyloroplasty. It promises greater, if not complete and permanent restoration of functional capacity, without being apparently more dangerous than Loretta's digital dilatation. My knowledge of the operation being entirely theoretic, I take great pleasure in quoting Dr. Senn, who has twice performed pyloroplasty and with the best results:

"*Pyloroplasty.* The safest and functionally most efficient operation for cicatricial stenosis is the one devised by Heineke and Mikulicz nearly at the same time. It is a procedure which well deserves the name it bears, pyloroplasty, as it not only removes the mechanical obstruction, but, at the same time, creates a new pylorus. This operation was first planned and practised by Heineke, of Erlangen, and eleven months later Mikulicz, ignorant of Heineke's work, made the operation in exactly the same manner. The operation is made by cutting the anterior wall of the strictured pylorus and extending the incision about an inch toward the stomach, and the same distance in the direction of the duodenum. The straight incision in the long axis of the pylorus divides the stricture, and the contracted pylorus becomes the posterior wall of the new pylorus by retracting the margins of the wound on each side, at the center, with tenacula, and suturing the wound in an opposite direction to the incision—that is, transversely to the long axis of the stomach. The new pylorus is made up of tissue taken partly from the anterior wall of the stomach and partly from the duodenum, the posterior wall being composed of the narrow contracted pylorus. In suturing the wound it is advisable to tie the sutures from each angle of the wound, tying the central sutures last. Two rows of sutures, deep and superficial, are employed, the same as in closing a wound of the stomach or intestines. Recurrence of the stricture is a physical impossibility, as the new pylorus is composed mostly of healthy tissue, and the danger attending the operation is not greater than that which accompanies an ordinary intentional wound of the stomach or intestines. The results of this operation, obtained in eight cases which have so far been reported, have been very satisfactory, both in reference to the immediate effects of the operation and the functional results."

In reviewing our resources for the surgical treatment of pyloric obstruction I am forced to the conclusion that, for malignant stenosis, free from adhesions, free from secondary involvements, and of recent date, gastro-enterostomy by the method of Senn, followed by pylorectomy as described and carried out by me, to be the best operation, and it will remain so until a more rapid method of pylorectomy will have been devised. If the method of Maunsell, of New Zealand (*American Journ. Med. Sciences*, March, 1892), be found to sustain the claims of its author, there seems to be some hope in the near future of a further improved technique.

For malignant stenosis, with adhesions and secondary involvements, gastro-enterostomy alone seems to be most available.

For cicatricial or non-malignant stricture of the pylorus, the operation known as the Heineke-Mikulicz pyloroplasty contests successfully, I think, with Loretta's forcible dilatation.

In referring once more to my paper published in 1890, and containing the report of my first case, I find that I have stated the same conclusions, and later developments have not changed the position I then took.

A TOPICAL TREATMENT OF BRONCHITIS.[1]

BY EDWIN J. KUH, M.D.,
OF CHICAGO.

DURING the last two years I have employed a method in the treatment of acute and chronic bronchitis, which, in point of both rationality and success, seems superior to all other methods known to me.

The first suggestion was received through an article by William Murrell.[2] As early as 1874 Murrell wrote an article in the *Lancet* on "Ipecacuanha Spray in Winter Cough and Bronchitic Asthma." This paper was followed by various others describing the successful use of this treatment both in England and America. Intermediate to these articles Murrell published similar ones in the same line of observation. His method can briefly be described as follows: Ipecacuanha wine was diluted with twice its bulk of water; inhalations were practised by means of either a steam spray or a double-bulb atomizer; the latter was principally used. Patients were made to inhale for about one-half hour, and as much as four drams were used. As a rule from 100 to 260 compressions of the hand-bulb were required, 100 squeezes being equivalent to about one dram of the fluid. It immediately becomes apparent that this method is too awkward for extended use, although Dr. Murrell publishes very successful experiences with over 200 patients. The ipecacuanha spray, as he himself states, occasionally nauseates and augments the dyspnea in bronchitic asthma.

After prolonged trial I abandoned both the alcoholic and watery sprays and used only oily menstrua. Alcohol and water choke off the breath in the method which I am about to describe.

I apply direct inhalation from what is known as Davidson's atomizer No. 65, which is connected with an air-tank of about thirty pounds pressure. This atomizer emits a very fine and copious spray. The tip is introduced into the mouth in the same manner as in laryngeal and tracheal treatment. The patient is instructed to make as prolonged an expiration as possible, to pause for a moment, then to begin inhaling gently and slowly, and then more rapidly and deeply; during inspiration the spray is started slowly, and then with more or less force, the patient thereby drawing the vapor into his lungs. The successful result of this method depends upon the skill with which patients inhale. Not all persons are able to inhale correctly without more or less practice. The spray must be forced from the atomizer and be actively drawn down into the chest; a mere patency of the glottis is entirely insufficient; the method is a failure if this is not insisted upon. In correct inhalation you can see the spray drawn down into the chest, just as a strong draught will draw smoke into a chimney. If you see vapor suspended in the mouth and throat the inhalation is imperfect. The spray evidently forms a moist coating in the tubes, and but a very small quantity is again exhaled. Severe fits of coughing will expel small additional clouds of vapor, but almost all of it remains in the chest. This method of inhaling must be distinctly separated from the well-known ones from steam or vapor atomizers, of which latter most throat specialists are in possession in one form or another. The usual steam atomizers and vaporizers in use have a far more limited efficacy because they are milder applications.

The composition of the spray to be used can, of course, be varied according to the exigencies of the case or the preference of the physician. No spray, I believe, will be very effective without the presence of menthol. The formula which seems to have been most useful to me consists of: Menthol, from 1 to 2 per cent.; creasote, 1 per cent.; camphor, from ½ to 1 per cent.; oil of eucalyptus, 2 per cent.; oil of pine needles, 2 per cent. in albolene or benzoinol. The average quantity to be inhaled is two drams. Patients then begin to gag and the stomach revolts against more. These two drams are, in well-trained patients, absorbed in about eight or twelve inspirations.

The sensation of the spray extends over almost the entire anterior portion of the chest. It is described as either cooling or warming. Many patients feel the sensation extend to the diaphragmatic line. It causes some hot smarting in and above the larynx. I have never seen it cause laryngeal spasm when deeply inhaled. It does not seem at all unreasonable to assume that so vigorous a treatment, extending probably into the finest ramifications of the air-tract, and in a mild sense flooding them, might possibly injure. But this has never yet, in my experience in hundreds of treatments, been the case. It is possible to train intelligent children in this treatment. My youngest patient was three and a half years old.

The results are most striking in the severest cases of chronic bronchitis; the severer the case the more palpable the result. I refer principally to those cases with tenacious, thick, yellowish, or greenish bronchial discharge, with or without dyspnea. It is astonishing with what almost instantaneous success practically incurable patients with an old bronchitis complicated with emphysema, an anxious, sallow face, and wheezy respiration, will improve. The inhalation in these cases is generally (especially in the beginning of the treatment) followed by a succession of explosive coughs and a mouthful of hereto-

[1] Read before the Chicago Medical Society, Feb. 13, 1893.
[2] Wood's Medical and Surgical Monographs, August, 1890.

fore unremovable phlegm; the spray seems actually to scoop out the secretion in these cases. These patients, who found it impossible to rest in bed, will, within a week, enjoy comparatively peaceful sleep. From week to week a greater permeability of the smaller tubes can be noted by auscultation. The phlegm gradually loses its purulent character and becomes mucoid; it also decreases so much in quantity that even during the inhalation very little, or none, can be raised.

In the few cases of bronchitis complicating chronic nephritis and diabetes under my observation, the results were equally gratifying. We must consider the circulatory and other changes in these diseases as predisposing to bronchitic infections. The maximum results in chronic bronchitis are generally obtained within the first two weeks of treatment; after that the amelioration progresses at a slower pace, and finally reaches its maximum.

The only flaw which I have found in the treatment is that it will not cure a large proportion of cases of chronic bronchitis *completely;* there frequently remains an occasional cough, with or without a slight *non*-purulent discharge from the tubes. I have not yet found a method of making the cure in all successful cases complete. I should be grateful for any suggestion in this direction. The explanation why a perfect, ideal cure is exceptional is, from a pathologic standpoint, easy to explain. The hypertrophied bronchial mucous membrane will naturally remain hypertrophied, and manifest its condition by some sensitiveness and hypersecretion. My most unsuccessful cases of chronic bronchitis are those which are classified as *catarrhe sec;* on auscultation one hears, or does not hear, an occasional piping râle and harsh breathing, and the patient states that he raises no phlegm. These cases of chronic, dry, hacking bronchial cough, especially in elderly people, I have frequently found disappointing.

If an asthmatic has sufficient control over his respiration during an attack to inhale the spray the paroxysm can be aborted.

During the last two hay-fever seasons patients have regularly come for relief of their dyspnea, after having once tested the method. It is an excellent palliative in these cases.

I believe that the inhalation should be used in pertussis. In the light of newer research concerning the probable localization of the pertussis-infection the spray must also in this disease be forced below the trachea to be of any benefit.

In those cases of nasal asthma, with persistent bronchitis after the nasal treatment has been exhausted, it is a very useful, and frequently curative after-treatment.

To those who are not discouraged with all treatments in pulmonary tuberculosis I would suggest this method for the exhibition of creasote. In a 1 per cent. oily solution creasote is barely perceived; they could therefore use considerably stronger solutions.

In *acute* bronchitis, without fever, the effectiveness of the spray is so pronounced that those who have had experience with it resort to it at each onset of a bronchial disturbance. I am strongly tempted to the claim that it will abort acute bronchitis; but conscious of the liability to fallacious conclusions in a self-limited and naturally brief disease, I make it with all possible caution. If it does not abort every attack, it certainly alleviates all of them.

Do the chronic cases relapse? As I have been employing this treatment for only two years I cannot give a final answer. Those relapses which have come under my notice were discharged after a few treatments.

In chronic cases it is best to begin with daily inhalations for a few days, then on alternate days, then at intermissions of three, four or more days; then once a week will suffice, until a maximum result has been reached. In this manner it is possible to extend a minimal number of treatments over several months, which amount of time is required in the severer cases. I do not, as a rule, exhibit medicines during this treatment, as they are usually superfluous. When there is dyspnea associated with the trouble the potassium iodid should not be dispensed with. Codeine and the wine or syrup of tar seem to rank next in usefulness.

I can afford to prescribe these drugs now without jeopardizing the conclusions drawn from the effectiveness of the inhalation, because by former exclusively topical treatment I have learned how much to attribute to medicinal and how much to the topical treatment. I never use drugs in the beginning of the treatment, in order to get a clear result from the inhalations.

Murrell's publication of 1890 does not seem to have stimulated the profession, if I may judge by the lack of literature on the subject. I have seen no reference to anything like my modification of Murrell's treatment in the foreign and domestic journals at my command, nor do Schmidt's *Jahrbücher*, or Sajous's *Annual* refer to any such treatment.

Beverley Robinson, in his monograph on "Inhalers, Inhalations and Inhalants," in the *Physicians' Leisure Library*, describes the deep sprays with alcoholic and watery menstrua. He has justly deserted these as inefficient, and advocates vapor inhalations with the globe inhaler. This method seems useful, but is far slower and weaker in its result than the method I have described.

ORIGINAL LECTURE.

TALIPES VALGUS AND TALIPES CALCANEUS.

BY DE FOREST WILLARD, M.D.,
CLINICAL PROFESSOR OF ORTHOPEDIC SURGERY IN THE UNIVERSITY OF PENNSYLVANIA.

[Reported by DR. JAMES K. YOUNG.]

I HAVE to-day a number of interesting cases upon which I shall operate during the hour: a case of talipes valgus, which requires tenotomy of the tendo Achillis and of the peroneal tendons, together with forcible reduction of the deformity; and three cases of talipes calcaneus, which require shortening of the tendo Achillis. This latter operation is sometimes known as Willet's operation; but I do not like the plan of attaching a man's name to an operation, as it is not expressive and is confusing.

OPERATION FOR TALIPES VALGUS.

The first patient is a girl, ten years of age, who, when an infant, had an attack of infantile paralysis, which has left as a sequela a paralysis only of the muscles of the leg. At the time of the attack, which was accompanied with all of the usual symptoms of acute poliomyelitis, the entire limb was affected; but the condition has gradually regressed, until, as you see, the leg and foot only are involved. The foot is markedly everted, from the tension of the peroneal tendons, and when we attempt to flex the foot upon the leg it cannot be brought to a right angle. This condition is due, in a measure, to paralysis and to elongation of the opposing muscles; but it is also due to the changed relationship that exists between the foot and the leg by the growth of the bones and joints; the soft parts remaining, in consequence of the paralysis, more or less diminished in growth, while the direction in which the body-weight falls upon the foot in its deformed position is abnormal.

In many cases of valgus the error is made in deciding that equinus does not exist simply because the ball and sole of the foot can be brought upon the ground, and the angle of the foot, with the leg, seems to be a right angle. On closer inspection it will frequently be discovered that the tendo Achillis is really much too short, and that the apparently fair position is gained by an elongation of the plantar ligaments, producing a decided false position of the medio-tarsal articulation, and a tendency to flat-foot. Such a condition tends to grow steadily worse, and is only remediable by tenotomy of the tendo Achillis with forcible replacement.

To divide the tendo Achillis, the puncture should be made with a sharp-pointed tenotome, upon the inner side of the tendon, about one inch above its insertion. It is best to slightly retract the skin, so that the puncture of the skin and that of the sheath of the tendon will not correspond. The blunt-pointed tenotome should be inserted flatwise beneath the tendon, and pushed well across; the foot then being flexed strongly, the cutting edge is turned toward the tendon, and by a slight sawing or rocking motion the tendon is severed. As soon as the tendon is divided flexion of the foot is removed, and the tenotome, again turned flatwise, is withdrawn.

In dividing the peroneal tendons it is better to pass the knife between the skin and the tendons and cut directly down on them. This can readily be accomplished by making the puncture and inserting the probe-pointed tenotome just above the tendons, which are brought into prominence behind the external malleolus by strongly everting the foot.

A piece of lint soaked in a 1:1000 solution of mercuric chlorid is applied to the punctures, and secured in position by a dry gauze dressing, antiseptic cotton and antiseptic roller. The foot, after being forcibly reduced into an over-corrected position, is retained by means of a plaster-dressing.

[The parts having been previously prepared by a thorough scrubbing with soap, water, and mercurial solution 1:1000, and the patient etherized, tenotomy of the peroneal tendons and of the tendo Achillis was performed, after which the deformity was over-corrected by manual force. The foot was dressed antiseptically and retained in a plaster-dressing. This dressing will be retained for ten days or two weeks, when it will be removed and a walking-shoe applied. This consists of steel uprights attached to the shoe below, and to a band passing about the leg under the knee, with a joint opposite the ankle, which is so arranged that the foot can be freely flexed, but cannot be extended beyond a right angle. Upon the inner side of the ankle-joint will be placed an oval pad to prevent inversion of the foot. An elastic strap attached opposite the great toe will constantly exert an inverting power upon the foot, while the stirrup will be so adjusted in its relation to the shoe that the tendency will be to throw the foot upon the outer side.]

HELPLESS CRIPPLE—LIMBS USELESS—INFANTILE PARALYSIS.

The next patient is a child of four years, suffering from the effects of infantile paralysis, who has been brought to the clinic from the mountain regions of North Carolina. There is no hereditary history of nervous disease or of deformity. The child is bright and well nourished; but she is not able to walk at all or to creep. When placed upon the floor, she pulls herself along by her arms, dragging her paralyzed legs after her. She can bear her weight upon her left limb when placed upon it, but there is marked back-knee. The right hangs perfectly helpless. We must do all we can to put this little one upon her limbs and enable her to help herself. The first step will be to put her legs and feet into such position, mechanically, that she can use them. Fortunately, she has no contractures higher up than in the calf-muscles, and if the feet are brought into proper shape she can be placed upright upon a supporting apparatus, after which efforts at locomotion will daily bring additional strength to the enfeebled muscles, and in time she will walk with considerable facility. Any improvement will be better than her present helpless condition, even though it be but upon crutches.

I propose to cut the right tendo Achillis and forcibly correct the deformity, retaining the limb in a plaster cast, and, on the left side, to cut and shorten the tendo Achillis, and finally to reduce the varus deformity. The incision should be made vertically down upon the posterior surface of the tendon in such a manner as to secure the greatest exposure, so that the center of the incision shall be over the point of election. The

tendon will be divided about an inch above its insertion. The sheath must be cleanly divided, and the tendon gently removed from its bed by passing a grooved director beneath it. The tendon may then be divided by an oblique incision from above downward and from within outward.

The ends are then secured by hemostatic forceps, the cut surfaces being held in apposition. The ends are slid past each other for three-quarters of an inch, this being the amount of shortening required, and while they are held closely together the two sections are secured by fine chromicized catgut sutures, of which three will be sufficient. The ends that have been pinched must then be cut off, as they may undergo necrosis and prevent union if allowed to remain in the wound. The parts must be thoroughly washed with a mercurial solution 1:1000, the incision closed with catgut or silkworm-gut sutures, and the parts protected by a full antiseptic dressing. The foot must be securely held by the hand of an assistant in an extended position until it is firmly fixed in the plaster-of-Paris dressing. The instep, as well as the malleoli and the surface of the wound, will be freely padded with cotton.

In three weeks the patient will be put upon a walking apparatus, which will consist of steel uprights extending from the shoes to a pelvic band about the waist. On the right side there will be a stop-joint, which will allow the foot to flex freely, but not to extend beyond a right angle; while an elastic strap, attached opposite the little toe to the outer upright, will constantly exert traction on the contracted tissue. At the left ankle there will be a stop-joint to allow the foot to extend, but not to flex beyond a right angle. A rubber artificial muscle will be attached to the heel of the shoe and pass to the leg-band below the knee. At the right knee there will be a lock-joint to fix the feeble knee, and on the left side a stop-joint to prevent the limb from being forced backward into a position of back-knee. With these operations, and with the apparatus that has been prescribed, and with massage, we hope to put the child upon her feet and permit her to walk.

TALIPES CALCANEUS AND CAVUS—INFANTILE PARALYSIS.

The next patient is a young woman, twenty-six years old; strong and robust. There is no history of tuberculosis. Her mother is living and well. Her father had paralysis five years before his death, but died of strangulated hernia. She has five brothers and three sisters living and in good health.

Her present trouble began at six years of age, during the summer. She had not been well for a day, and suddenly noticed a paralysis of the left limb. Her present condition shows considerable wasting of the left limb; the left calf measures 11½ inches, and right 14½ inches.

There is paralysis of the tibialis anticus, extensor longus digitorum, peronei, and gastrocnemius muscles, the foot being in a position of marked cavus.

In this case we will shorten the tendo Achillis by the same operation as was performed in the preceding case, but we will divide the tendon by a long longitudinal section, uniting the ends of this incision by a transverse incision passing from the central incision to the border of the tendon, then overlapping these cut ends a sufficient distance to correct the deformity, and suturing the cut surfaces securely together.

[The parts having been previously rendered aseptic, and the patient etherized, the tendon was exposed, as in the previous operation. With a sharp-pointed scalpel the tendon was split for a distance of two inches by a longitudinal incision from behind forward, extending through the entire thickness of the tendon. From the upper part of this incision the inner portion of the tendon was divided by a transverse incision passing inward, and from the lower part of this incision the outer portion of the tendon was divided by another transverse incision passing outward. The cut ends were overlapped for half an inch, and while the cut surfaces were held by forceps attached to the ends of the severed tendon the parts were secured by four chromicized sutures. The bruised ends of the tendon were cut off, the sutures cut short, the wound washed, closed, and dressed antiseptically, the foot being retained in an extended position by a plaster-of-Paris bandage. For the relief of the cavus the plantar fascia was freely divided, and strong force was applied upon the top of the instep to break down the exaggerated arch.]

The dressing will remain for three weeks, and then we will apply a walking-shoe. The shoe will have an insole or shank built in it to give it additional strength, for the attachment of the stirrup of the brace and for a depressing strap to act upon the cavus. The lateral steel uprights extend to just below the knee, and there will be a stop-joint at the ankle to permit full extension, but to limit flexion. Behind, an elastic strap will check flexion and tend to constantly extend the foot upon the leg, thus relieving the shortened tendon for a time until it has fully recovered. On the outer and inner ankle-joints there will be small rounds pads to maintain the foot in good position. With this apparatus the woman's condition, and appearance also, will be much improved.

INFANTILE PARALYSIS—TALIPES CALCANEO-VALGUS.

The next case is in a boy, nine years old, who has always been strong and hearty, and has never had any illness, except a mild attack of scarlatina. Both parents are living and well. The family history is negative.

The present deformity began at about one year of age before the boy began to walk. Of late it has grown rapidly worse.

On examination there is observed almost a posterior displacement of the astragalus, with great eversion of the sole of the foot. He walks more and more upon the scaphoid and upon the calcaneum. To permit of this there is a marked lengthening of the tendo Achillis. The foot is held in this everted position by the tension of the peroneal tendons, which, as the foot is inverted, are brought prominently into view. The tendo Achillis will be cut across obliquely and shortened one-third of an inch, and securely sutured with chromicized sutures, and the peroneal tendons will be divided through the same wound. There are no important vessels here, and the tenotome can be carried outward; this will avoid making an additional puncture. The foot will be dressed in the extended position, as in the preceding cases.

[The parts having been previously prepared, and the

patient etherized, the tendon was shortened in the same manner as in the second case. The wound was then washed with mercurial solution; the skin-wound was closed by means of interrupted catgut sutures, and the wound was dressed with aristol powder and covered with a full antiseptic dressing. The foot was then held in an inverted and extended position and fixed in a plaster-of-Paris dressing.]

After three weeks a walking-apparatus will be applied, similar to the one in the last case. To maintain the foot in its corrected position a pad will be placed opposite the inner ankle, and the shoe will be attached to the stirrup, so as to slope outward and to throw the foot upon its outer plantar surface, while an elastic strip fixed opposite to the great toe will continually lift the inner portion of the foot.

MEDICAL PROGRESS.

Two Symphysiotomies, one for the Extraction of a Decapitated and Imprisoned Head.—SCHWARZ (*Centralbl. f. Gynäkol.*, 1893, No. 5, p. 84) has reported the case of a tertipara, twenty-two years old, whose first child was delivered, dead, by means of forceps; the second child was also born still, version having been necessary. In the third labor version was practised in the hope of expediting a tardy delivery, but the head could not be born, either spontaneously by the contractions of the uterus or with the aid of forceps. Decapitation was performed, but the uterus became tetanically contracted and the head could not be removed. Considerable hemorrhage occurred from a wound in the lower segment of the uterus. As a further complication, an eclamptic attack took place. The pelvis was generally contracted. After the lapse of a considerable time symphysiotomy was decided upon. As soon as the section had been made the head, which was disproportionately large, was readily delivered by means of forceps. Three hours after the operation a second eclamptic attack occurred. During the puerperium the temperature was elevated; there was considerable offensive discharge; and the urine contained a small quantity of albumin. The wound had healed at the end of eight days. At the end of six weeks the woman was out of bed; at the end of eight weeks she could walk firmly.

The second case was in a woman, twenty-two years old, with a rhachitic pelvis. The child occupied a transverse position; the left arm had prolapsed; the uterus was tetanically contracted. Version was attempted, but could not be accomplished because of the prominence and depression of the sacral promonotory. Symphysiotomy was determined upon. The articular cartilage was found ossified, and a saw had to be employed in its division. The child had meanwhile died. In the mother parametritis and pelvic peritonitis developed, and she died on the eighth day of general peritonitis. After death it was found that the uterus was not profoundly involved, but that the fatal process had had its origin in a cellulitis consequent upon the difficulties and traumatisms of the operation.

Extirpation of the Gall-bladder.—At a meeting of the Medical Society of Greifswald, HELFERICH (*Deutsche medicin. Wochenschr.*, 1892, No. 45, p. 1020) presented a man, forty-two years old, whose gall-bladder had been extirpated. For three months there had been gastric derangement without jaundice. In the abdomen a tumor was detected corresponding in form, size, situation, and relations with the gall-bladder, and slightly movable with change in position. From the fact that the tumor could be made to disappear by distending the rectum with air, and from the pain induced by examination, it was concluded that there were numerous adhesions, and that the contents of the bladder were purulent. The abdomen was opened by an incision along the outer margin of the right rectus muscle, which was joined by another incision at right angles and directed toward the middle line. After the adhesions were broken up and precautions against contamination of the wound and the peritoneum were taken, the gall-bladder was opened and about half a pint of pus was evacuated, with some oil-globules and débris of calculi. A calculus almost as large as a cherry, wedged in the cystic duct, was removed with some difficulty. On account of the presence of pus and of the probability of ulceration of the cystic duct, and of marked changes in the walls of the gall-bladder, it was decided to perform cholecystectomy. The cystic duct was divided at a healthy point and its lumen closed by a Lembert suture. The bladder was then easily removed. The wound was carefully approximated, and no drainage was provided for. The subsequent course of the case was entirely afebrile. The patient made a speedy and perfect recovery.

Intra-thoracic Goiter.—WIESMANN (*Corr.-bl. f. Schweizer Aerzte*, 1893, 1, p. 23) has reported the case of a man, fifty-six years old, of whom it could only be learned that he had suffered from dyspnea during his whole life. The head and the upper part of the body were bent forward. Breathing was stertorous and attended with the bruit of respiratory stenosis. The neck was extremely short. To the right of the larynx, but apparently not related to the dyspnea, was a hard nodule as large as a walnut. Heart and lungs presented no abnormality; but an area of dulness on percussion, extending, on either side of the sternum, from the clavicles to the level of the cardiac dulness, was demonstrable. The acute symptoms were relieved by the administration of large doses of potassium iodid and the application of an ice-bag to the chest. Subsequently, dysphagia was added to the clinical picture and the patient soon afterward died, exhausted. At the post-mortem examination, the anterior mediastinum was found occupied by an ovoid mass as large as two fists, extending from the level of the clavicles to that of the bifurcation of the trachea, upon which and upon the pericardium as well, the mass rested. The tumor was a partly cystic goiter. The mass to the right of the larynx proved to be a calcareous thyroid gland, which had no apparent parenchymatous connection with the intra-thoracic goiter. The trachea was flattened and displaced upon the lateral aspect of the tumor to the right. The esophagus traversed the posterior aspect of the mass; it had also suffered some lateral displacement; its upper portion presented a diverticulum.

Two Rare Tumors of the Thigh.—BOEGEL (*Centralbl. f. Chirurgie*, 1892, No. 48, p. 1007) has reported the case

of a man, forty-three years old, who for two years had observed a progressive swelling upon the posterior aspect of the left thigh, with which for several months had been associated local pain, at times extending to the sole of the foot, and alternating with formication. On operation, a large, dense, ovoid tumor was found, occupying quite the lower half of the posterior aspect of the thigh, and separating the heads of the biceps and semi-tendinous muscles. The growth was connected with the sciatic nerve, the fibers of which coursed along its anterior surface. On microscopic examination the tumor was found to present the histologic appearances of a lymphangiectatic fibro-sarcoma. In the same person a second tumor, which proved to be a large lipoma, was removed from the upper part of the corresponding thigh. The mass was situated externally to the long head of the biceps, and was attached by its capsule to the tuber ischii. The man recovered without any unpleasant sequelæ. The second case was in a woman, thirty-five years old, who had accidentally discovered a tumor upon the posterior surface of the left thigh, which occasioned no special discomfort, but grew rapidly. The tumor was found to be as large as a child's head, and was attached to the fascia of the semi-tendinous muscle. On microscopic examination it proved to be a lymphangiectatic fibro-myxoma.

A Case Symphysiotomy.—KRASSOWSKY (*Centralbl. f. Gynäkologie*, 1893, No. 5, p. 81) has reported the case of a deutipara, twenty-three years old, with a contracted pelvis (the true conjugate meausuring 2.9 inches) and in labor at term. As the head remained movable above the pelvic inlet and failed to engage, and as in the first labor it had been necessary to practise craniocleisis, it was now decided to perform symphysiotomy. The operation was attended with considerable hemorrhage from the cavernous body of the clitoris. During the application of the forceps the innominate bones separated for a distance of two and a half inches, and the right sacro-iliac articulation was heard to rupture. The child, a girl, weighed six and three-quarter pounds; the greater transverse diameter of the head measured 3.65 inches. The placenta followed the child in fifteen minutes. The puerperium was complicated by cystitis, a little febrile reaction, and some mental excitement. The patient sat up in the third week. On the twentieth day she stood up, but on account of weakness could walk but a few steps. A day later she was able to do better, although the gait was a little unsteady. There was slight mobility at the symphysis.

THERAPEUTIC NOTES.

Teucrin—A New Therapeutic Agent.—MOSETIG (*Internationale klin. Rundschau*, vii, 6, p. 214) has prepared from the plant teucrium scordium an extract to which he gives the name teucrin and that he has successfully employed by subcutaneous injection in the treatment of various mycotic affections. An infusion is prepared by means of hot distilled water from the dried and not too old plant; the expressed fluid is concentrated to the consistency of honey, repeatedly cleared with alcohol, finally evaporated to a specific gravity of 1.15 and introduced into sterilized vials which are hermetically sealed. The product is a dark-brown fluid, with a pungent, bitter taste, and miscible in all proportions with water. The dose is forty-five minins injected subcutaneously. The agent has been employed most largely in the treatment of tuberculosis of soft tissues. The injection is followed by constitutional symptoms that last perhaps for eight or ten hours. In from half an hour to four hours the temperature rises; occasionally there is a chill; in a few cases cutaneous eruptions appeared; in cases in which pulmonary tuberculosis also existed the sputum assumed a milky appearance. Breaking down took place at the site of local disease, with a throwing off or absorption of the disintegrated structures.

Hiccough Relieved by the Wet-pack.—CHAMBARD-HENON (*Rev. de Thèr. méd.-chir.*, 1893, No. 3, p. 77) has reported the case of a man, thirty-four years old, in which, in the third week of an attack of scarlatina, incessant hiccough appeared, preventing sleep and interfering with the taking of food and drink. The urine was scanty, high-colored, but contained no albumin. The temperature ranged between 101° and 102°. After all other measures had been exhausted, it was concluded to apply peripheral stimulation, in the hope of overcoming spasm and establishing diuresis. Accordingly, the man was every three hours placed for five minutes in a wet-pack. After the third application the flow of urine increased and the hiccough subsided. In all, twenty-nine applications were made and the relief was permanent. The view is expressed that the hiccough was dependent upon an action upon the nervous system by the toxins of scarlatina, upon the elimination of which with the urine the symptoms disappeared.

Peculiar Toxic Symptoms from Antipyrin.—FREUDENBERG (*Centralb. f. klin. Medicin*, 1893, No. 5, p. 97) has reported the case of a man, thirty years old, in which following the ingestion of a single dose of seven and a half grains of antipyrin, a sense of burning in the urethra was perceived, and from which on pressure a drop of clear, thin fluid could be expressed. There was at the same time intense itching of the prepuce and scrotum, while the prepuce was swollen from edema. The urine was clear and contained no albumin. To confirm the accuracy of the observation the man was, at a later period, given a similar dose of antipyrin. Within an hour and a half itching appeared, and in five hours and a half prepuce and scrotum were swollen. No other parts of the body were affected, except perhaps the lower lip, which became somewhat reddened and swollen.

For Constipation Attended with Anemia.—

℞.—Ext. nuc. vom.	gr. ¼.
Ferri sulph. exsic.	gr. j.
Aloin.	gr. ¼.
Pulv. myrrhæ	gr. ss.
Pulv. ipecac.	gr. ss.
Ext. gentianæ.	gr. ij.—M.
Ft. pil. no. j.	

S.—To be taken at bedtime.

The Practitioner.

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SATURDAY, MARCH 11, 1893.

THE WHITE BLOOD-CORPUSCLES.

As early as 1845 VIRCHOW had noticed that in the leukocytosis attending certain diseases the small white corpuscles predominated, while in others the large forms prevailed, and he was able thus to divide leukemia into two varieties. Twenty years or more later the histologic characters of the blood were studied by MAX SCHULTZE, and his observation that the white cells of the blood presented "no morphologic unity" stimulated many to the closer study of them. Foremost among the investigators of the blood has been EHRLICH, of Berlin, and his happy application of the method of KOCH of preparing cover-glass specimens, by means of which the blood is studied in dried and stained preparations, has led to a vast widening of our knowledge of hemopathology.

EHRLICH'S descriptions of the "specific granulations" of the leukocytes, and his methods of differentiating them by micro-chemical reactions, are now so well known and readily accessible that we shall do no more than make passing reference to them here. It will be remembered that, according to EHRLICH, there are in normal blood five varieties of white corpuscles: 1. Lymphocytes, small elements the nuclei of which stain intensely in the triple stain, and about which there is only a small rim of protoplasmic substance. These cells are believed by EHRLICH to have their origin in the lymph-glands and lymphatic tissue of the body generally. 2. Large mononuclear elements, cells which contain a large oval or ovoid, feebly staining nucleus which is usually placed excentrically in the cell, the protoplasm being relatively well developed. 3. Leukocytes, with polymorphous nuclei, or the so-called "polynuclear leukocytes." These are larger than the lymphocytes, and smaller than the large mononuclear elements, and are characterized by the presence of S-, V-, Y-, Z-, or E-shaped nuclei, the protoplasm being thickly studded with fine granules, which stain intensely in neutral coloring mixtures, the *ε*-granulation, or neutrophilic granulation. 4. Transition forms between forms 2 and 3, in which the nucleus shows indentations and the protoplasm often a few neutrophilic granules. 5. Eosinophiles, cells varying in size and in the appearance of their nuclei, and the protoplasm of which contains large globular granules, which have a particular affinity for the acid dyes, and more especially for eosin.

In health these varieties are generally found to be present in fairly constant proportions, the lymphocytes forming from 15 to 30 per cent., the polynuclear neutrophiles from 60 to 75 per cent., the mononuclear and transition forms 6 per cent., and the eosinophiles from 2 to 4 per cent. of the whole number of the white corpuscles.

The determination of deviations from this normal relationship gives much more valuable information than a simple numerical estimate of the total number of all leukocytes present. Thus, in the acute exudative inflammations, accompanied by leukocytosis, the increase is chiefly in the polynuclear neutrophiles—not a matter of surprise when we recollect that these cells are the only ones known positively to leave the vessels in inflammation. It has been claimed that the polynuclear leukocyte owes its emigrative power to the high degree of ameboid movement which it possesses, but this is a point not yet settled. KANTHACK has only recently claimed to have demonstrated in experimental inflammations the emigration of small mononuclear leukocytes, but his observations, together with such theories as that of HANKIN, who believes that the defensive proteids of the blood-serum have their origin in certain of the leukocytic granulations, cannot be held to have been satisfactorily proved until a

sufficient number of control-investigations have confirmed them.

While the modern clinician appreciates the value of EHRLICH'S methods in the study of the diseases of the blood proper, and would not neglect to make use of them when dealing with a case of grave anemia or of leukemia, we fear that the importance of systematic blood-examinations in the ordinary infections and cachexias has heretofore been insufficiently recognized. To take a single example, it has long been known that in uncomplicated cases of typhoid fever there is in the blood no evidence of leukocytosis—that, indeed, the number of white corpuscles may go below the normal. But the differential count in stained specimens shows a marked alteration in the numbers of the individual varieties present, the large mononuclear elements being relatively increased, and the neutrophiles, with polymorphous nuclei, relatively diminished, while the number of lymphocytes remains essentially normal.

The appearance of a leukocytosis, or of a relative increase in the neutrophiles, would then in typhoid fever be strongly suggestive of an acute complicating inflammation elsewhere in the body—perhaps, for instance, in the lung or in the pleura. When, therefore, the physical signs are obscure, the color-analysis of the leukocytes might aid materially in the differential diagnosis.

But our special object in this article is to draw attention to a classification of the leukocytes more minute even than that of EHRLICH, although it is based upon and has been worked out by the methods employed by him. USKOW, of St. Petersburg, in 1890, in a monograph entitled *The Blood as a Tissue*, has studied the colorless corpuscles by means of contrast-stains with the greatest care and minuteness. His article appeared in the Russian language and so has been practically inaccessible to the majority of readers. A short reference to it appeared, indeed, in *Virchow's Archives*, but was so incomplete as to be of little service. We are pleased to find, in a lecture delivered by THAYER[1] before a section of the Massachusetts Medical Society, a complete account of USKOW'S investigations. The leukocytes are divided into: (1) Small lymphocytes, cells the size of a red corpuscle or smaller; (2) large lymphocytes in which the protoplasmic ring about the nucleus is a little larger and more irregular; (3) small, transparent corpuscles, cells about the size of the large lymphocytes, the nuclei of which stain more or less feebly, the protoplasm taking on no stain whatever; (4) large, transparent corpuscles, cells from three to five times the size of red corpuscles, in which the protoplasm takes on no stain; (5) giant, transparent corpuscles—the largest elements seen in the blood. Besides these there are corpuscles similar in size to these transparent forms, in which the protoplasm stains feebly, standing midway between that of the lymphocytes and that of the transparent corpuscles in its affinity for coloring matters. USKOW, therefore, includes in his classification: (6) Small transitional forms or giant lymphocytes; (7) large transitional forms, and (8) giant transitional forms. Finally, there are (9) the "multinuclear" neutrophilic leukocytes, of which he mentions three varieties, and (10) the eosinophilic leukocytes. USKOW concludes further from his experimental work on animals that the white corpuscles may be divided into (*a*) *young* elements, (*b*) *ripe* elements, and (*c*) *over-ripe* elements. Among the young elements he places the small transparent leukocytes, and the small and large lymphocytes; among the ripe forms, the small, large, and giant transitional leukocytes, and the large and giant transparent elements; the multinuclear neutrophiles and eosinophilic leukocytes are regarded as over-ripe forms, as they can be traced through various degenerative stages to their final dissolution.

Anyone who will take the trouble to examine his blood-slides stained with the EHRLICH-BIONDI mixture will easily convince himself of the accuracy of USKOW'S classification. However, as THAYER points out, in making differential counts in ordinary work, the adoption of this classification will lead to some difficulty, as the lines drawn between some of the forms will vary with different observers. To overcome this, certain modifications have been suggested by TSCHISTOWITCH and others. But for these we must refer our readers to THAYER'S article, in which will be found not only a careful account of technical methods, but also an interesting *résumé* of the most valuable of the recent contributions to our knowledge of the histologic characters of the blood in disease, including many interesting personal observations.

[1] Boston Medical and Surgical Journal, 1892, Nos. 7 and 8.

The Consumption of Alcohol in France was, in 1850, one liter sixty centiliters for each person; in 1870 the corresponding figures were two liters eighty-one centiliters; in 1885, three liters eighty-five centiliters.

EDITORIAL COMMENTS.

Deaths from Poisoning in England and Wales.—The *British Medical Journal*, January 28, 1893, p. 191, publishes an interesting summary of the cases of poisoning that occurred in England and Wales during the year 1891, based upon data contained in the annual report of the Registrar-General. The total number of deaths from poisoning during the year was 876, being 242 more than in 1889. Of this number, 544 cases were accidental, 327 were cases of suicide, and 5 were cases of homicide. Among those in the first group, 132 deaths were due to lead-poisoning; and 114 to narcotic poisoning by "opium, laudanum, morphine, chlorodyne, soothing syrup, paregoric." In 62 cases of accidental poisoning death was due to chloroform; in 31 to carbolic acid; in 19 to the poisonous alkaloids; in 17 to the mineral acids; in 8 to arsenic; in 7 to chloral; in 2 to oxalic acid. In 128 cases death was due to miscellaneous poisons. In 24 cases the nature of the poison was not clear. Among the cases of suicide, death was due to "opium, laudanum, morphine, chlorodyne, in 56 cases (17.1 per cent.)"; to carbolic acid in 63 (19 per cent.); to mineral acids in 28; to arsenic in but 6; to hydrocyanic acid or potassium cyanid in 36; to one or other of the potent alkaloids in 27 instances; to oxalic acid in 20 cases. Of the suicides, 178 were males and 149 females. Relatively to the total number of suicides by either sex, poison was much more frequently had recourse to by females. Taking both sexes together, death resulted from poisoning in one-eighth of the total number of suicides. Among the deaths by accident from all causes, poisoning figures in rather less than one-thirtieth, and twice as frequently among males as among females. Legislation cannot be too stringent in controlling the sale of recognized poisons and of substanes or medicines of which the composition is unknown.

Black Tongue is the descriptive name given to a condition characterized by the formation upon the dorsum of the tongue of a hair-like deposit that passes through various stages of coloration from yellow to brown and finally black, ultimately disappearing by desquamation as gradually as it came. Repeated recurrence is the rule. The manifestation is not known to be associated with any definite derangement of the general condition. The process is thought to be a result of irritation, resulting in undue proliferation of the epithelium, particularly of the filiform papillæ. The affection is rather a rare one, though, by a coincidence, we have seen half a dozen instances in the course of a year. In all of these the teeth presented a deposit of dense black pigment, such as is not uncommon in those that are negligent in the care of the teeth. A good description of the condition will be found in the *Transactions of the Pathological Society of Philadelphia*, vol. xiii, p. 70.[1] Morelli (*Compt. rend. hebdom. des Séances de la Soc. de Biologie*, s. 9, t. v, No. 1, p. 23), reports a case, with the results of a bacteriologic study. In a scraping from the tongue, among and within some of the epithelial cells, and by cultivation in artificial media, he succeeded in finding a bacillus, from 0 3 to 0.4 μ thick and from 2 to 4 μ long. Spores could not be demonstrated; nor could the condition be reproduced by inoculation. Attention is called to the fact that black tongue is habitual in parrots and in giraffes, and is occasionally present in cows and in goats. Morelli was unable, however, to demonstrate in the case of parrots the presence of a microbe corresponding with that found in the case of man.

[1] S. S. Cohen: Two Specimens of Melanotic Hypertrophy of the Filiform Papillæ of the Tongue (Black Tongue).

The Microbe of Beri-beri.—Beri-beri, or kak-ké, is practically unknown in this country, unless it be admitted that the cases recorded several years ago by J. J. Putnam[1] among some fishermen on the New England coast were instances of the affection. The disease is, however, at home in China, Japan, the East Indies, and Brazil, where it is endemic and occasionally epidemic. It appears in one of two forms, presenting either the symptoms of an acute infection, with febrile manifestations, anasarca, anemia, and frequently death, or more especially those of multiple neuritis, with motor, sensory, and trophic phenomena. As indicated, the clinical picture is suggestive of an infectious process, and biologic studies appear to have confirmed the accuracy of this assumption. Musso and Morelli (*Compt. rend. hebdom. des Séances de la Soc. de Biologie*, s. 9, t. v, No. 1, p. 18) report having succeeded in isolating by culture from the blood, the fluid effused into the serous cavities and subcutaneous tissues, the peripheral nerves, and the medulla in a number of cases of beri-beri in Brazil, micrococci that they believe to be identical with those already described by Lacerda, Ogata, and Eykmann as the specific cause of the disease. Inoculations of the organism were fatal to rabbits and guinea-pigs; dogs were more refractory. In the former apathy and paresis of the posterior extremities appeared, followed after a varying interval by death. After death, effusions into the serous cavities were found, together with the evidences of neuritis and the presence of organisms identical with those inoculated.

Diabetes of Pancreatic Origin.—Of the diseases of the pancreas even less is known than of its function. Recent investigations tend to show that in addition to its amylolytic, its proteolytic, and its fat-converting functions the pancreas possesses a glycolytic function. It had already been observed that in some cases of diabetes mellitus the pancreas presented degenerative changes, but it remained for recent investigators to establish incontrovertibly the relation between the disease of the gland and the clinical manifestations. It has been shown experimentally (and the evidence has been confirmed by clinical observation) that total destruction of the pancreas is essential for the development of this particular variety of diabetes—for it is well known that diabetes may also be caused by a lesion in the floor of the fourth ventricle.

Freyhan (*Berliner klin. Wochenschr.*, xxx, 6, p. 129) has reported two cases of diabetes in which, after death, the pancreatic duct was found to be occluded by calculi, while the gland itself was entirely disorganized and replaced by fibrous and fatty tissue.

To thus recognize that diabetes mellitus may be of diverse origin is in itself a distinct advance.

[1] Cited by Osler: Practice of Medicine, p. 780.

What therapeutic fruit this new knowledge will bear it is yet too early to realize. The administration of prepared pancreas to diabetics has thus far not been attended with especially encouraging results.

A New Preparation of the Thyroid Gland for the Treatment of Myxedema.—The remarkable results obtained in the treatment of myxedema by means of preparations of the thyroid gland have stimulated investigators to find some method of preparing a dry, stable preparation to replace the crude gland or the extracts that have been employed. Guided by a belief that the thyroid gland might contain some hitherto undescribed ferment White (*British Medical Journal*, No. 1676, p. 289) determined to try whether, by the formation of gelatinous or flocculent precipitates in liquid extracts known to possess the desired activity, the active principle could be separated from the large amount of proteid and other organic substances present. The glands were first exhausted with a mixture of equal parts of glycerin and water. The filtered fluid was acidulated with phosphoric acid, and calcium hydrate was added until an alkaline reaction was produced. The precipitate was filtered out as rapidly as possible, washed and dried over sulphuric acid without heat. Of the resulting powder the dose is three grains. Good results have attended its use.

The Woman's Medical Journal, "a monthly journal devoted to the interests of women physicians," is the name of the latest venture in medical journalism. This apparent exclusiveness of purpose is somewhat relaxed by an editorial assurance that the journal "will print news and notes of interest to the masculine as well as the feminine part of the profession." We had heretofore not been aware that women in medicine had professional interests apart from those common to all physicians. Surely woman in medicine has received fair and generous treatment and has proved herself abundantly capable to take care of herself without the necessity of special protection. The real *motif* of the venture may, however, be concealed in the concluding words of the salutatory, which "expresses appreciation of the advertisers who appear in our advertising pages, and trust that each reader will see something which she desires, and send for it at once."

Gynecology Among the Insane.—With a reckless haste and publicity not altogether above suspicion of some unworthy political influence, the Pennsylvania State Board of Public Charities condemned the use of surgical methods of relief among the inmates of the female department of the State Asylum at Norristown. The public has thus become more certain than ever of the justice of its horror of the imagined abuses practised by the profession upon the defenceless insane and sick. The Board of Trustees of the Asylum, and Dr. Bennett, in reply to the State Board of Charities, have more than met all the charges, and have clearly shown that the question of sanity or insanity has not been considered in the removal of the diseased organs of the six cases complained of. If nothing else is immortal, the bitter suspicion and deep-seated grudge against the medical profession seems destined never to die.

The New Immigration Law enacted last week and signed by President Harrison underwent the usual crippling process in order that some law on the subject might be passed and that some restriction might be made obligatory. Masters of vessels and surgeons at the sailing ports are required to make affidavit before our consuls as to the emigrant's condition, physical, educational, fiscal, moral, etc., as to his purposes, destination, and whether his passage has been paid for him or not. Upon arrival at our ports special inquiry shall again be instituted by the U. S. officials as to the immigrant's fitness to land. While all these provisions are excellent, they are not so thorough-going as the circumstances would seem to warrant. The power of the local inspectors of immigration is, as it should be, curtailed and the General Government assumes control of the matter.

Regulations at Foreign Ports to Prevent Cholera—Surgeon-General Wyman has issued regulations to prevent the emigration from foreign ports of those infected with cholera or other epidemic disease. Cabin passengers must show proof of their places of residence for four days prior to their embarcation, and if they have been exposed to contagious disease they will be detained, their baggage disinfected, etc. Steerage passengers from an infected port are to be detained five days under medical observation, with disinfection, regulations as to cleanliness, etc. If cholera breaks out among them, all are detained until seven days after the last case has recovered.

The Right to Establish Hospitals for Infectious Diseases.—The British Court of Appeals has decided that a local authority has no power to forbid the erection of a hospital within its district by another local authority, whether the hospital be for infectious diseases or not. The city of Manchester thus has power to establish a small-pox hospital on ground it owns in the adjacent town of Withington, despite the opposition of the people of Withington.

The Samuel D. Gross Monument Fund.—The amounts so far subscribed aggregate nearly ten thousand dollars, of which about five thousand have been secured in Philadelphia. Four thousand dollars are still needed to complete the desired amount. Dr. J. B. Chapin is chairman and treasurer of the committee, to whom subscriptions may be forwarded, or to Mr. George Keil, 1715 Willington Sreet, Philadelphia.

Norse Mythology and Cod-liver Oil.—Many of our readers will doubtless have received, and wondered as they read, what possible connection a treatise on *Norse Mythology, the Religion of our Forefathers*, by an LL.D., can have with cod-liver oil. The two subjects are brought together in a strange and illogical copartnership in a pamphlet before us, most noteworthy as a literary and advertising curiosity.

It Does Not Often Happen, because patients are not often so generous, nor practioners so scrupulous, that a physician returns a check for $500 voluntarily tendered, on the ground that the medical service rendered had not been worth so much money. This incident, pleasant to chronicle, happened last week in Philadelphia.

CORRESPONDENCE.

THE PHYSICIAN AND THE PHARMACIST.

To the Editor of THE MEDICAL NEWS,

SIR: In an editorial in a late issue of THE MEDICAL NEWS (February 18, 1893, p. 194), it is said that "the study of pharmacy does not include all the knowledge necessary for the practice of medicine, but the study of medicine does include all the knowledge necessary for the practice of pharmacy, in so far as the protection of the public against danger of mistake is concerned." While holding the opinions of THE MEDICAL NEWS in the greatest respect, yet I feel that they are sometimes wrong, especially when touching upon the subject of pharmacy, and from the views quoted I most positively dissent. Can you sincerely say that you believe a medical graduate, without other training, to be a competent prescriptionist? Would you risk your prescriptions in the hands of such a man? Is there also no other element than danger of mistake to be considered? What of the identity of the various drugs and chemicals that appear upon the market—the ability to distinguish medicinal plants and parts of plants and their products from each other, and from sophistication and impurities, and the best methods of combining leading remedies?

The province of the pharmacist is to preserve drugs that they retain their peculiar properties; to prepare them for use in the best possible manner, as well as to dispense them. This cannot be taught in a few hours. If you will look into the subject you will find that our medical colleges devote to the study of pharmacy from naught to forty-six hours' time of the entire term necessary to the degree. The largest number of hours that I can find is 46; another is 23, another 10, and the announcements of other colleges do not mention pharmacy at all. This, against the 1500 hours of the New York and Philadelphia colleges of pharmacy, and about that amount in the colleges of other cities.

Do you not look upon medicine as a tool with which you are to work—the medium by which you are to produce certain physiologic effects? When you prescribe strychnine you want the physiologic effect of strychnine; you want this as well as to guard against the danger of mistake. If the medical graduate desires to place himself before the public as competent to prepare and dispense medicines, why should he not prove to the public his abilities to do so by a certificate from an examining board? If a pharmacist, who has had at least four years' apprenticeship in pharmacy, who has attended two full courses of lectures and passed an examination in these branches, must appear before such a board, why should not the medical graduate, who has received but a few hours' instruction?

Again, I venture to say that if our physicians received a preparatory course at a college of pharmacy—were this encouraged by our medical colleges rather than to be discouraged, as it is to-day—there would be far greater ability in the profession in the treatment of disease. The subject is distinctive—medical colleges cannot handle it. It is a specialty, and even more of a specialty to medicine than dentistry is to surgery. To say the least, proprietary articles would receive a great blow, for their greatest indorsement to-day is by physicians. A very bright practitioner—a graduate of one of our best universities—recently told me that he had seen but once a copy of the Pharmacopeia and never a National Formulary. He was astonished to learn that lactopeptine was a proprietary article. I would really like to know how many active physicians in the land possess a copy of the last Pharmacopeia. A very small proportion, I imagine; and that number, no doubt, had a previous pharmaceutical training, and can appreciate the value of the U. S. P.

A pharmacist who makes an effort to be truly and legitimately a pharmacist; who makes and prides himself upon fine pharmacopeial preparations, cannot live by his knowledge and labor, because physicians do not support him. He must devote a large portion of his prescription department to opened bottles of So-and-so's elixir, or other quack preparations prescribed by the profession. Respectfully yours,

M. S. SIMPSON, M.D.

PLAINFIELD, N. J.

[Our esteemed correspondent is both right and wrong. He is right in maintaining that greater attention should be paid to practical pharmacy in medical education; but he is wrong in assuming that the number of hours devoted to this at college represents the entire knowledge and experience of even a large minority of physicians. He is right in condemning the sale of nostrums by druggists and the use of nostrums by physicians; but he is wrong in assuming that physicians in general use nostrums or approve of their sale. THE MEDICAL NEWS has expressed itself fully on this question. The one reason why pharmacists cannot subsist on prescription business alone, and hence believe themselves forced to sell nostrums is that there are more stores in a given neighborhood than necessity demands. The medical profession does cordially support every man who tries to do legitimate pharmacy only. At least one notable example is to be found in Philadelphia. Few druggists nowadays prepare the galenical preparations they dispense, and still fewer adhere to the U. S. P. as closely as they should. We know of more than one instance in which a prescription for an infusion has been filled by diluting with water a purchased fluid extract. We believe that a physician practising pharmacy would be more scrupulous as to the efficiency and purity of his stock than are many pharmacists. He would also be less likely to do "counter-prescribing," for he would realize its dangers more keenly. Further, we hold—and this is the only point of real moment—that the sole justification for restrictive legislation must be that it is necessary for the public safety. On that broad ground we can uphold the present law of Pennsylvania concerning the practice of pharmacy; but we cannot approve of the proposition to repeal Section 11.—ED. NEWS.]

EPILEPSY OR ANGINA PECTORIS?

To the Editor of THE MEDICAL NEWS,

SIR: On the night of August 1, 1892, a man was roused from sleep by a "killing" pain in the region of the heart. There was also dyspnea, so marked as to make utterance difficult, and the heart's action was peculiar in that it was first very rapid and then very slow—so slow, indeed, that the man feared it would soon

stop. The seizure lasted longer than an hour. There was no loss of consciousness. The tongue or lips were not bitten; no frothing was observed. The man did not fall or cry. The pain was limited to an area of twelve inches in diameter, having the heart for its center. Relief was sought in posture, in heat, in opium; but found in none.

The seizure, as described, was repeated every night from August 1st to December 16th, and at the same hour, viz., from 12.30 to 1.30, unless the man remained awake, out of bed. In the morning he insisted that he was as well as ever. During the day no alteration of the respiratory sounds was found, and the heart gave no indication of any fault of structure or function. The man could run or mount stairs without exciting dyspnea and without increasing the rapidity of the heart's action except in a slight degree.

There is no recollection of any injury to the head; no history of specific infection or inheritance. The man is a large, strong, ruddy-faced farmer of thirty-five, and, so far as he knows, no near relative is or has been the subject of chorea, epilepsy, or obstinate neuralgia.

Great apprehension was felt during the first weeks of the invasion—apprehension of immediate death; but time allayed this concern, after prolonged experience, though it did nothing to assuage the severity of the pain.

I am unable to learn what measures were employed by his medical advisers for his relief, but am informed that all were ineffectual; that no interruption or relief of the paroxysm was accomplished.

Consideration of the case compelled the belief that the affection was essentially a neurosis. The regular recurrence, the lack of evidence of the existence of any structural lesion in the interval between attacks, were suggestive of the group of cases described so well by Trousseau as instances of epileptiform neuralgia, though there was in this patient's manner nothing indicative of the nervous organization that ordinarily manifests itself by quick replies, alertness of movement, the mastery of the emotions, and a certain grotesqueness of behavior that is easy to discern but difficult to describe. He was, on the contrary, self-possessed, unimaginative, and had himself in good control, and was rather stolid and impassive. It ought to be added that prior to this seizure, on August 1st, he never experienced any convulsive movement, never had a moment's loss of consciousness, except during sleep, never had even an attack of migraine.

The treatment seems to me to settle any doubt as to the character of the affection. The bromides, in heavy doses, mainly at bedtime, interrupted the paroxysms, and to this date there has been no indication of their return. It should be added that the duration of the paroxysms was not infrequently prolonged to three hours, and was never less than an hour, and that the distress was extreme. The pain was sometimes declared to be greater in the epigastrium, again in the precordium, and again under the clavicles. Tingling and numbness in the arms and a sense of suffocation were described as severe, but no râles or rhonchi were heard during or after the paroxysm. There was no tendency to stupor or drowsiness upon the cessation of the seizure. The statement relating to the dyspnea may suggest a kinship with paroxysmal asthma, idiopathic asthma, but the kinship was no nearer to asthma than to angina, and measures employed against it by the family, such as stramonium, were of no avail; nor does exposure to dust, or, indeed, to any irritant, excite asthmatic attacks. He never had an attack of asthma in his life, unless these seizures were asthmatic. The most notable feature of this case, and one which marks it as anomalous, was its recurrence at a fixed hour, and the fact that it was averted by vigilance. It may be urged that this seems farcical; that a successful attempt to delude has been accomplished by the player-patient. It is scarcely necessary to say that the play was a long and expensive one, and that the cost and suffering were in one person and in one purse.

Respectfully,

J. N. RANDALL, M.D.

DECATUR, ILL., January 26, 1893.

PHYSICIANS AS PHARMACISTS.

To the Editor of THE MEDICAL NEWS,

SIR: In reference to your editorial comment in THE MEDICAL NEWS of February 18th, I feel that I must protest when you say that "The study of medicine does include all the knowledge necessary for the practice of pharmacy, in so far as the protection of the public against danger of mistake is concerned." There are many reasons why your statement is based on unsound reasoning. I will mention but two of them.

1. The physician studies only the remedies which he expects to use in his practice. Few physicians will study or prescribe over one hundred different remedies in a lifetime. The pharmacist's prescription-file will verify this assertion.

The pharmacist must compound and sell hundreds, if not thousands of remedies. His study must include the medicines employed by the regular, eclectic, or homeopathic practitioner, herb doctor, midwife, etc., as well as all domestic remedies. How many physicians have even heard of all the remedies in the Pharmacopeia, much less those of the National Formulary and other pharmaceutical works.

2. The physician does not gain a pharmaceutical knowledge of even the few remedies he prescribes. It is not "manipulative skill" that he lacks, but actual knowledge, which the pharmacist gains by hard study from his works on pharmacognosy and pharmacy.

Very truly yours,

H. M. WHELPLEY, Ph.G., M.D.

ST. LOUIS, MO.

REVIEWS.

A MANUAL OF CHEMISTRY. FOR THE USE OF STUDENTS OF MEDICINE. By ARTHUR P. LUFF, M.D., B.Sc., Lecturer on Medical Jurisprudence and Toxicological Chemistry, St. Mary's Hospital Medical School, London. With 36 engravings. 12mo, pp. 522. Philadelphia: Lea Brothers & Co., 1892.

THE design of this book is to present to the medical student the fundamental principles of chemistry and such detailed facts as he most needs to know in the study and practice of medicine. Upon the whole, the design is well carried out. The language is terse, the style clear, the statements, as a rule, accurate. In the section on organic chemistry there is too much condensation, and

a few additional pages might advantageously be devoted to a preliminary and detailed explication of the theories of structure. Compounds of physiologic or pathologic occurrence in the human organism should not only be mentioned in chemical sequence, but a separate chapter should be devoted to further comment upon them in medical sequence. A few slips are to be noted; for instance, the phrase "trypsin, the ferment contained in the pancreatic juice," might lead the student to infer that the pancreatic juice contained no other ferment. The word gun-cotton, employed in the formula for the manufacture of gun-cotton, is evidently a typographic error. The statement that strontium salts are not of any medical importance is not up to date. The tests for acetone are omitted; and the only sugar-test we found is that with alkaline copper solutions. Fehling's solution is specifically mentioned, but its exact composition is not given. On the other hand, much useful information, not to be found elsewhere without much search amid matter of no value to physicians, is here gathered and set in order. A second edition will doubtless soon be called for, in which minor defects, such as those we have pointed out, may be corrected. We cordially commend the book to medical readers, practitioners as well as students.

THE DISEASES OF THE STOMACH. By DR. C. A. EWALD, Extraordinary Professor of Medicine at the University of Berlin; Director of the Augusta Hospital, etc. Authorized translation from the second German edition (with special additions by the author), by MORRIS MANGES, M.D., Attending Physician to Out-patient Department Mt. Sinai Hospital, New York City. With thirty illustrations. 8vo, pp. xii, 497. New York: D. Appleton & Co., 1892.

THE author of this book occupies a foremost place among those who have adopted the modern methods of study of disorders of the digestive apparatus, and his lectures may be accepted as an authoritative exposition of the present status of the subject. The translator has done his work well; the smoothness and clearness of the language being in marked contrast with many translations from the German.

Ewald rightly insists that one cannot be a "stomach specialist." The physician who devotes special attention and study to the diagnosis and treatment of disorders of digestion and diseases of the digestive apparatus must have large experience and broad views, or he will fail to appreciate the information gained by his special investigations; while the technique is so simple that anyone should be able to acquire it.

Among the more important practical points is the statement that peptonization is unnecessary in rectal alimentation; that there is no absolute standard for the size of the normal stomach, and hence functional signs must be largely depended upon in the diagnosis of dilatation, *megagastria* being thus discriminated from *gastrectasia*; that chronic gastric ulceration must be recognized as among the conditions favoring the development of carcinoma, especially in young persons, and that the presence of carcinoma cannot be held to be demonstrated by the absence of free hydrochloric acid from the gastric secretions, unless careful observations, extending over a prolonged period, during which a suitable therapy has been employed, are of uniform result. Equally erroneous is it to exclude carcinoma because free hydrochloric acid is found, as, with localized neoplasm and intact mucous membrane, the secretion of this acid may continue until shortly before death. Ewald believes it to be impossible to diagnosticate carcinoma from isolated epithelial cells found in the vomit. He states that even cancer-nests may be closely simulated by detached fragments of the mucosa. The volume is rich in such facts as these, and will repay careful study.

TRANSACTIONS OF THE ASSOCIATION OF AMERICAN PHYSICIANS FOR THE YEAR 1892. Vol. VIII. 8vo, pp. xix, 355. Philadelphia: Wm. J. Dornan.

THE *Transactions* of this society are necessarily of an interesting and instructive nature—composed as they are of papers read by representative men of the profession in America.

Owing to the limited space at our command, we must be content with a cursory mention of a few facts gleaned from some of the papers that deal with vital questions of the day.

Dr. George Wilkins, of Montreal, Canada, expresses a strong advocacy of the treatment of typhoid fever by cold baths. His favorable views of the Brand method of treating typhoid fever were concurred in by Drs. William Osler, William Pepper, and Charles G. Stockton, in the discussion that followed the reading of the paper. Dr. James Tyson, in the same discussion, referred to two fatal cases treated by this method. In one case death resulted from embolic pneumonia, and in the other from peritonitis succeeding perforation.

Mere mention can only be made of the interesting and instructive paper of Dr. Geo. M. Sternberg, U. S. A., entitled "Practical Results of Bacteriological Researches." It must be read to be appreciated.

In a paper on "The Treatment of Acute Dysentery by Antiseptic Rectal and Colon Irrigation," Dr. W. W. Johnston, of Washington, D. C., concludes that boric acid and carbolic acid are the best antiseptics to use, preference being given to the drug first named.

One of the most instructive papers presented in this volume is that by Dr. Charles G. Stockton, of Buffalo, N. Y., entitled "Misconceptions and Misnomers Revealed by Modern Gastric Research." It is rendered especially so from the fact that four-fifths of Americans suffer from gastric derangement of one sort or another, and any article tending to correct errors in the diagnosis of affections of the stomach or to systematize the nomenclature of its diseases is more than welcome.

"Tube-Casts and Their Diagnostic Value," by Dr. I. N. Danforth, of Chicago, Ill., is a paper that will more than repay the reader for time spent in its perusal.

FINGER-PRINTS. By FRANCIS GALTON. 8vo, pp. 216. London and New York: Macmillan & Co., 1892.

ALTHOUGH investigated as far back as 1823 by Purkinje, the lines of the palmar surfaces have never before been systematically analyzed. Galton finds that the ridges of the balls of the digits may be reduced to three typical arrangements: "Arches, loops, whorls." These patterns are subject to wide variation as regards

their cores and the individual ridges to infinite minute differences. Throughout life these lines remain unaltered to the smallest detail, and the imprints of the ten fingers thus furnish a distinctive combination for purposes of identification, compared with which the French system of measuring criminals, called *Bertillonage*, falls far short. The "A. L. W." system of classification admits of a simple system of indexing, by means of which any recorded print may be found among thousands, with the same ease as a book in the card catalogue of a library. The inheritance of peculiar patterns is demonstrated and a preponderance of maternal influence is shown in the hereditary transmission of finger-patterns. From the data thus far obtained, the races of mankind do not appear to be characterized by peculiar patterns, although the percentage of arches in the English and the Hebrews differs in the ratio of 13.6 to 7.9, or nearly 5 to 3. While the author does not consider the relative infrequency of arches among the Hebrews to be of fundamental importance, he offers no explanation for it. No indications of temperament, character, or ability are to be found in finger-marks.

MEMORANDA ON POISONS. By THOMAS HAWKES TANNER, M.D., F.L.S. Seventh American, from the last London edition. Revised by JOHN J. REESE, M.D. Small 8vo, p. 177. Philadelphia: P. Blakiston, Son & Co., 1892.

THE well-deserved popularity of this little book is indicated by the fact that this is the seventh American edition. Some new facts are introduced that have been brought out since the publication of the previous edition, and the nomenclature has been changed to conform with modern terminology, while matters that had become obsolete have been judiciously eliminated. The subject is of the greatest importance to the practitioner, and the student cannot too early in his career make himself thoroughly familiar with it. The knowledge is of a kind that is useless if not ready. This little book will be found to be accurate and sufficiently complete to meet all ordinary emergencies. Its size makes it convenient for constant carrying in the pocket. It should prove indispensable to all that require a concise, systematic and accurate grouping of the symptomatology, diagnosis, and treatment of cases of poisoning.

FIRST AID TO THE INJURED AND TRANSPORTATION OF THE WOUNDED. By HENRY G. BEYER, M.D., Ph.D., M.R.C.S., Passed Assistant Surgeon, U. S. N. (Proceedings of the United States Naval Institute. Vol. XVIII, No. 3.)

IN recent years quite a number of books on emergencies have been written, and doubtless have been the means of directing general attention to the importance of giving intelligent instruction on the subject to those whose life-work renders them liable to be called upon at any moment to minister, as best they can, to some comrade stricken down beside them. The naval cadets at Annapolis, to whom the lectures before us were delivered, were fortunate in having the subject presented to them in an exceptionally clear, practical, and interesting manner.

Dr. Beyer wisely begins his course by explaining the nature, causation, and prevention of infectious diseases; then speaks of bacteria in their relation to wounds; and completes his foundation by dwelling upon antisepsis. After imparting some necessary information on anatomy and physiology, and giving instructions on the art of bandaging, descriptions are given of the various injuries —wounds, sprains, hemorrhage, shock, fractures, etc., etc.—with very clear directions as to the recognition and temporary management of each. The effects of heat and cold, drowning, sunstroke, and kindred casualties then receive their just share of attention, and the lecturer concludes his course by devoting the last lecture to the methods of transportation of the sick and wounded.

We take pleasure in saying of these lectures that they constitute one of the best books on "First Aid to the Injured" that can be found. They are written in a lucid and pleasing style, and all of the important points dealt with are illustrated by excellent cuts.

NEWS ITEM.

The Prize Essay on Homeopathy, by Dr. Browning, is now ready for distribution. It forms a neat pamphlet of thirty-three pages, and will be mailed, postage paid, at the rate of seventy-five cents a dozen copies—the cost of printing and postage. Orders may be addressed to Dr. George M. Gould, 119 South Seventeenth Street Phila., Pa.

BOOKS AND PAMPHLETS RECEIVED.

Phthisis in Relation to Life Assurance. By Thomas Glover Lyon, M.D. Pamphlet. London: Chas. & Edwin Layton, 1892.

Vom Thurm zu Babel. Von Henrich Stern. Milwaukee: Freidenker Publishing Co., 1892.

Experimentelle Beiträge zur Pathogenese der Brightischen Albuminurie und Nephritis. Von Mariano Semmola. Reprint. Wien, 1891.

Three Cases of Acute Mania from Inhaling Carbon Bisulphid. By Frederick Peterson, M.D. Reprint, 1892.

Anesthetics: Their Uses and Administration. By Dudley Wilmot Buxton, M.D., B.S. Philadelphia: P. Blakiston, Son & Co., 1892.

A Healthy Brain is Necessary to a Free Will. By C. G. Comegys. Reprint, 1892.

An Operation for the Radical Cure of Stricture of the Lachrymal Duct, with Description of a Stricturotome. By Charles Hermon Thomas, M.D. Reprint.

Preliminary Announcement of the First Pan-American Medical Congress, to be Held at Washington, D. C., U. S. A., September 5, 6, 7, and 8, A.D. 1893. (Executive edition.)

The Curability of Narcotic Inebriety. By J. B. Mattison, M.D. Reprint, 1892.

The Prime Etiological Factor of Glaucoma is Constitutional. By S. O. Richey, M.D. Reprint, 1892.

Asheville; or, the Sky-land. By Mrs. Harriet Adams Sawyer St. Louis: Nixon-Jones Printing Co., 1892.

Transactions of the American Surgical Association. Vol. X. Edited by J. Ewing Mears, M.D. Philadelphia: William J. Dornan, 1892.

A Complete List of the Officers and Fellows of the American Surgical Association, Together with an Alphabetically Arranged Index of Vols. I–X. 1880–1892.

Compressed Air and Sprays in Diseases of the Nose, Throat, and Ear. By Seth Scott Bishop, M.D. Reprint, 1892.

The Pennsylvania State College Agricultural Station. Bulletin No. 21. The Koch Test for Tuberculosis. Report of Work Done in Coöperation with the Pennsylvania State Board of Agriculture, 1892. By H. P. Armsby. Pamphlet.